

BUSINESS WEEK

HOW JETS ARE
MAKING OVER
THE AIRLINES

Special Report (page 156)

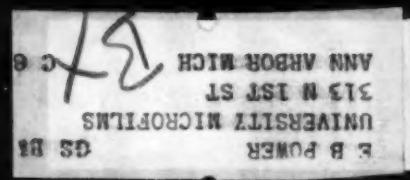
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A McGRAW-HILL PUBLICATION

JULY 21, 1956





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GENERAL BUSINESS

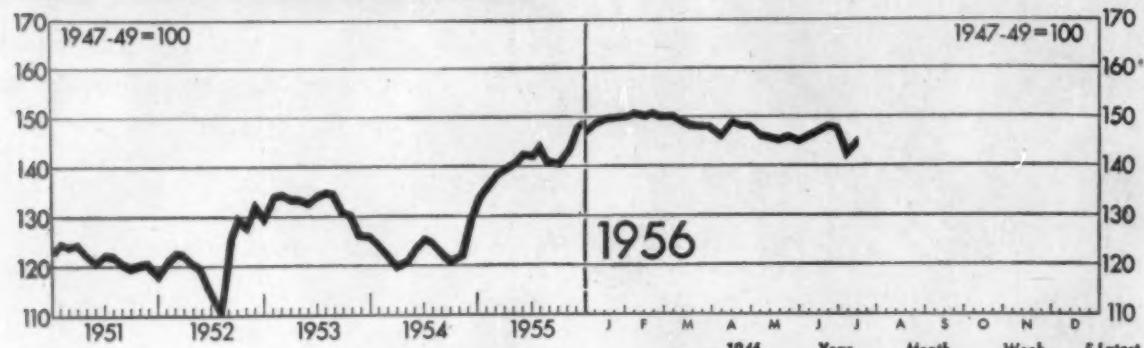
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FIGURES OF THE WEEK



BUSINESS WEEK INDEX (chart) 1947-49=100 1947-49=100

PRODUCTION

	1946 Average	Year Ago	Month Ago	Week Ago	5 Latest Week
Steel ingot (thous. of tons).....	1,281	2,195	2,290	+317	360
Automobiles and trucks.....	62,880	207,627	133,686	189,236	145,169
Engineering const. awards (Eng. News-Rec. 4-wk daily av. in thous.).....	\$17,083	\$76,395	\$76,880	\$82,897	\$80,628
Electric power (millions of kilowatt-hours).....	4,238	10,440	11,425	10,391	10,878
Crude oil and condensate (daily av., thous. of bbls.).....	4,751	6,626	7,066	7,086	7,084
Bituminous coal (daily av., thous. of tons).....	1,745	1,478	1,642	+2,086	1,771
Paperboard (tons).....	167,269	225,074	289,328	178,617	202,972

TRADE

Carloadings: miscellaneous and l.c.l. (daily av., thous. of cars).....	82	73	74	73	72
Carloadings: all others (daily av., thous. of cars).....	53	58	57	58	52
Department store sales (change from same wk of preceding year).....	+30%	+13%	+9%	+7%	+3%
Business failures (Dun & Bradstreet, number).....	22	224	286	208	251

PRICES

Spot commodities, daily index (Moody's, Dec. 31, 1931 = 100).....	311.9	403.8	413.8	415.7	411.7
Industrial raw materials, daily index (BLS, 1947-49 = 100).....	††73.2	95.8	93.8	94.0	94.3
Foodstuffs, daily index (BLS, 1947-49 = 100).....	††75.4	84.2	80.8	80.3	80.9
Print cloth (spot and nearby, yd.).....	17.5¢	19.0¢	18.9¢	18.7¢	18.6¢
Finished steel, index (BLS, 1947-49 = 100).....	††76.4	153.8	158.2	158.2	158.3
Scrap steel composite (Iron Age, ton).....	\$20.27	\$40.33	\$44.83	\$44.83	\$46.50
Copper (electrolytic, delivered price, E & M, lb.).....	14.045¢	36.000¢	45.275¢	43.050¢	39.750¢
Wheat (No. 2, hard and dark hard winter, Kansas City, bu.).....	\$1.97	\$2.18	\$2.09	\$2.06	\$2.06
Cotton, daily price (middling, 14 designated markets, lb.).....	**30.56¢	33.55¢	35.48¢	35.34¢	34.84¢
Wool tops (Boston, lb.).....	\$1.51	\$1.85	\$1.77	\$1.77	\$1.79

FINANCE

90 stocks, price index (Standard & Poor's).....	135.7	335.6	367.6	383.3	389.2
Medium grade corporate bond yield (Baa issues, Moody's).....	3.05%	3.53%	3.76%	3.78%	3.79%
Prime commercial paper, 4 to 6 months, N. Y. City (prevailing rate).....	3/4-1%	2-2 1/2%	3 3/4%	3 1/4-3 1/2%	3 1/4-3 1/2%

BANKING (Millions of Dollars)

Demand deposits adjusted, reporting member banks.....	††45,820	56,113	56,974	55,248	55,346
Total loans and investments, reporting member banks.....	††71,916	84,013	85,236	†86,980	85,132
Commercial and agricultural loans, reporting member banks.....	††9,299	23,465	28,258	28,843	28,734
U. S. gov't guaranteed obligations held, reporting member banks.....	††49,879	31,663	26,745	26,559	26,349
Total federal reserve credit outstanding.....	23,888	25,571	25,251	25,684	25,903

MONTHLY FIGURES OF THE WEEK

	1946 Average	Year Ago	Month Ago	Latest Month
Housing starts (in thousands).....	June.....	55.9	134.5	108.0
Bank debits (in millions).....	June.....	††\$85,577	\$177,917	\$185,584
Personal income (seasonally adjusted, in billions).....	May.....	\$178.0	\$304.3	\$321.7
Farm income (seasonally adjusted, in billions).....	May.....	\$16.9	\$15.7	\$14.9
Imports (in millions).....	May.....	\$412	\$958	\$990

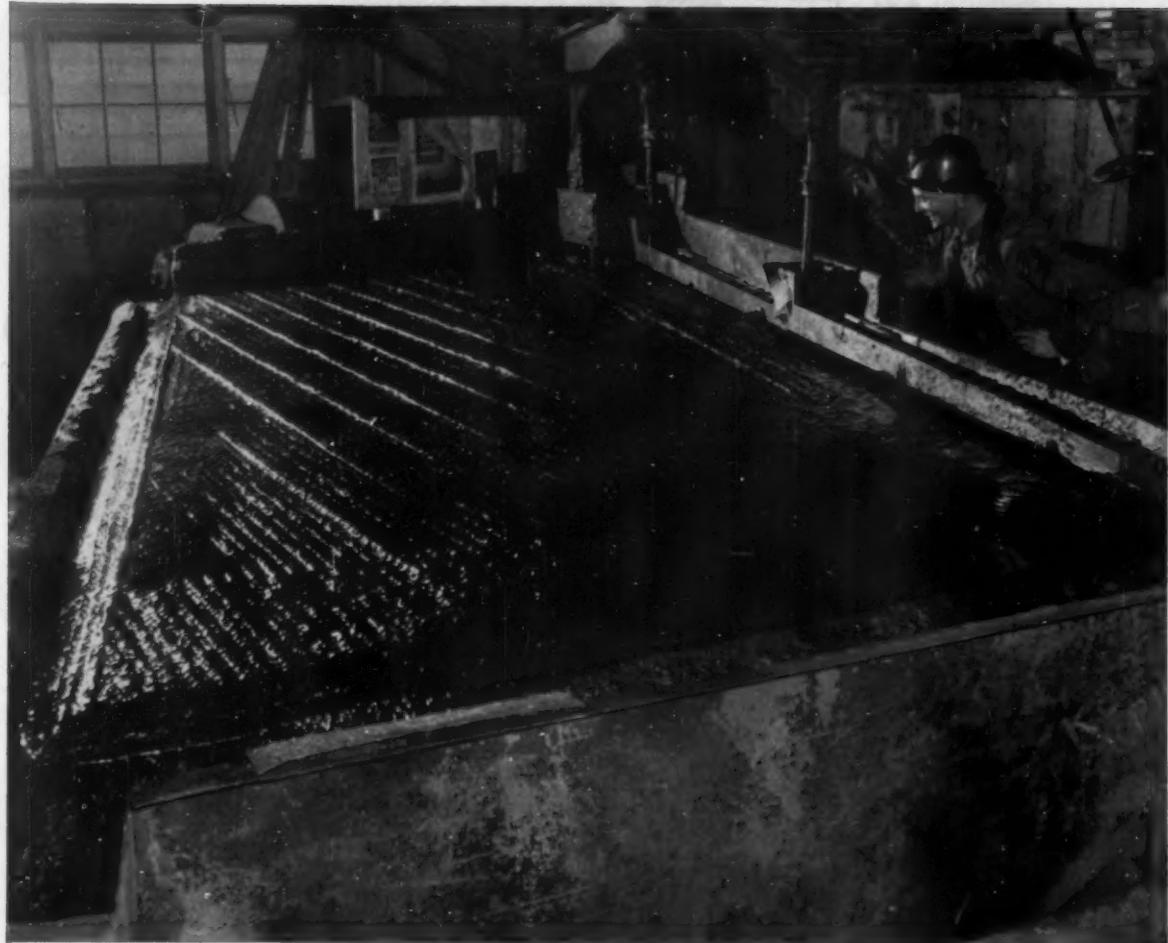
*Preliminary, week ended July 14, 1956.
†Revised.

**Estimate.
††Ten designated markets.

§ Date for 'Latest Week' on each series on request.

THE PICTURES—American Airlines—100 (bot.); Boeing Airplane Co.—156, 157; Carl Byoir & Associates—100 (top); Chrysler Corp. of Canada, Ltd.—34; Grant Compton—46, 47, 48, 49, 50, 54; George Harris—94; Herb Kratovil—28, 29; Ed Nano—Cover, 71, 72; Nester Photo—95; Gene Pyle—162, 163; Royal Typewriter Co.—102; Peter Schmid of Pix—136, 137, 138; U. P. 27.

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READERS REPORT

TVA Included

Dear Sir:

Re your article How to Get Ahead in the Utilities Industry [BW—Jun. 16 '56, p66]. You have a comparative chart (page 67) showing the five most efficient generating plants, which I assume includes the entire U.S.

Can you tell me specifically whether the various generating plants of the Tennessee Valley Authority were included in this comparison? If so, does this mean that none of the TVA generating plants were within the top five in efficiency of production?

GEORGE S. CAMPBELL

GENERAL MANAGER
CAMPBELL INDUSTRIES, INC.
CHATTANOOGA, TENN.

* TVA steam plants are included in this comparison. Through 1954, none were in the top U.S. central station generating plants in thermal efficiency. The figures for 1955, as the story notes, are still preliminary, will not be official until FPC issues its 1955 statistical data later this year. However, in the preliminary 1955 data, no TVA plant was in the first ten.

What Monopoly Means

Dear Sir:

With reference to your article Monopoly Takes On New Meaning [BW—Jun. 16 '56, p34] the dissenting justices in the du Pont case might do well to review the concepts upon which this economic phenomenon called monopoly is based.

The notion of monopoly or competition only has relevance as it pertains to an industry. An industry in which one producer is the only seller may be called monopolistic; one in which there are numerous small producers of reasonably uniform size may be called competitive. Further, economists agree that the definition of an industry includes only producers who sell to a given market and who sell substitutable products. Product substitutability actually is the key to the definition of industry. Obviously, as in the cellophane situation, the problem is not black or white but relates to the question of the degree of substitutability between products.

Antitrusts might make more meaningful decisions if they employed another economic concept,

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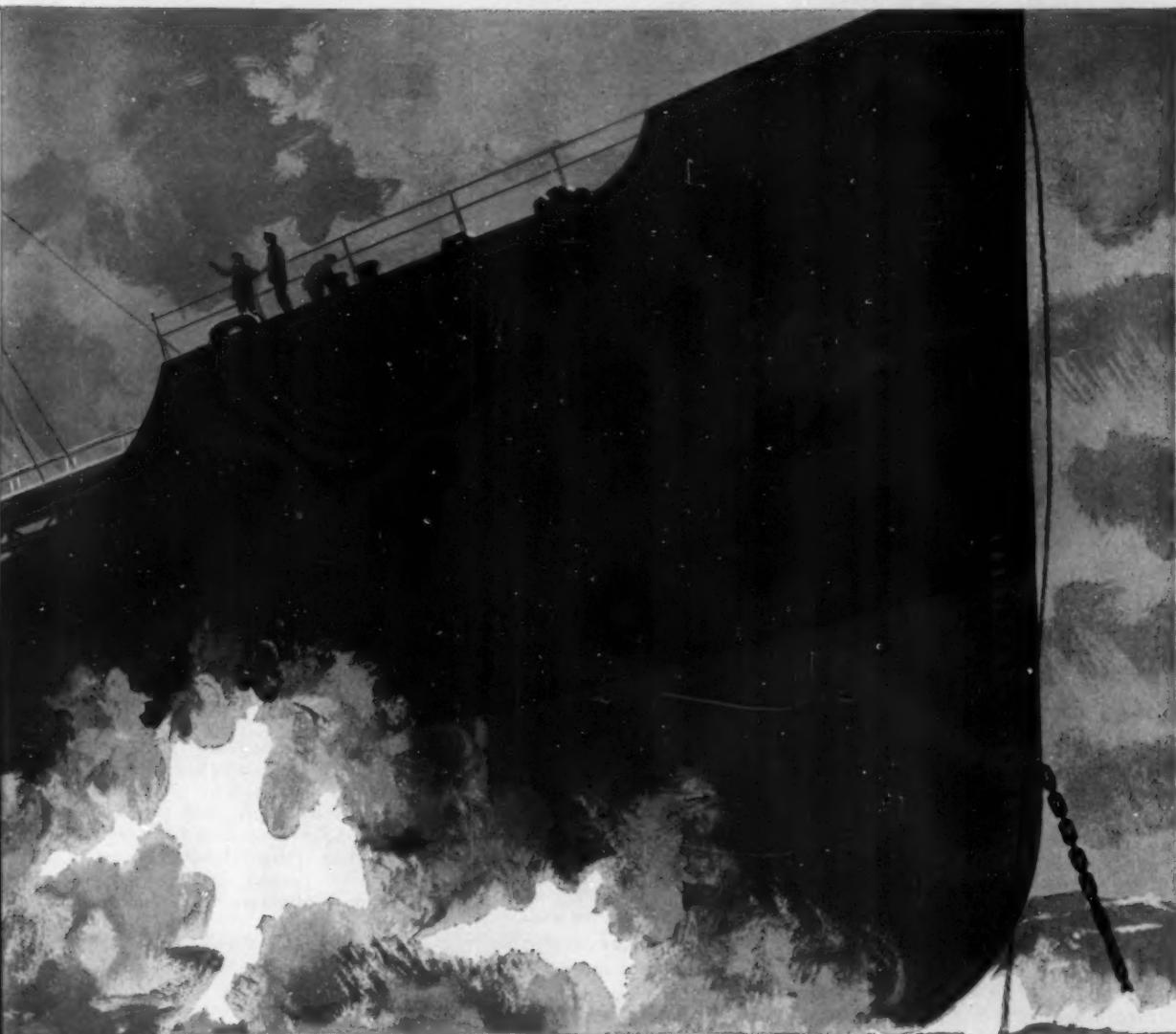
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that of "cross-elasticity of demand." This might yield a practical and useful measure of substitutability even though in theory it may be inexact. Briefly, it quantitatively relates the change in sales of product A, resulting from a known change in the price of product B. Such a scientific approach, however, may not be very useful in a political atmosphere.

In any event, the Chief Justice's assumption that product "interchangeability" is "compatible with a fully monopolized economy" contradicts the recognized definitions which give the term "monopoly" any meaning.

J. L. KUPKA
ENGLEWOOD, N. J.

AIFT Reviewed

Dear Sir:

Our compliments on the research article "Getting Along With Foreigners" [BW—Jun. 9 '56, p75].

Whether acceptable behavior patterns for use abroad can be taught to Americans only by anthropologists is perhaps debatable, but the need for such training is not.

At the American Institute for Foreign Trade, which you honored with a feature article [BW—Nov. 3 '51, p160] the required "area background" courses have from the beginning stressed behavior patterns of the peoples involved. Along with competence in foreign languages and in the technical business aspects of international commerce, the appreciation and understanding of the other fellow are given prime importance, and that means his point of view, his business and social customs, his emotional "set," his taboos, and even his prejudices. The area courses cover more than that, of course, for they are solidly based on the geography, history, economics, politics and sociology of the regions toward which students are aiming for their careers overseas.

Since 1951 we have graduated another 1,000 men and women, making 2,000 in ten years. We know of 525 who at this writing are overseas in 62 countries of the free world, helping to carry on America's business. Another 600 are "in the pipeline" awaiting overseas assignment by their employers. Some graduates have returned after one or two tours of duty abroad, and many have succumbed to the immediate lure of the excellent domestic employment picture.

. . . The school is no longer "financially shaky"; the annual defi-



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cits incurred in this expensive training are made up by an increasing circle of contributors in American industry. The percentage of college graduates enrolled has climbed from 60% to 94%; the remaining 6% have some significant experience to offer in lieu of a degree. It was premature to say that the fading away of the G. I. Bill hurt the school badly; enrollment has kept steady at 200 (not 300) since Korea in spite of the significantly smaller educational benefits granted veterans. And acceptance of the AIFT graduate by industry has increased notably. Some 53 firms visited the campus to hire this year's 200 graduates, while more than that number explored the classes by mail. In a word, the "precarious" note of the 1951 article is no longer heard. . . .

CARL A. SAUER
PRESIDENT
THE AMERICAN INSTITUTE FOR
FOREIGN TRADE
PHOENIX, ARIZ.

Different Approach

Dear Sir:

You mention in your article Warehouses Get a Cost Sleuth [BW—Jul. 9 '56, p84] that management uses cost analysis facts for "discussion on money losing lines." In other words, *after* the costs are incurred, you can now determine which products have been unprofitable or profitable. I hate to think of what would happen to many plants I know if this principle were applied.

Why wait until *after* the product is made to determine if it is profitable? By using a standard cost system and a little estimating ability, find out *beforehand* which lines or products will be profitable or not.

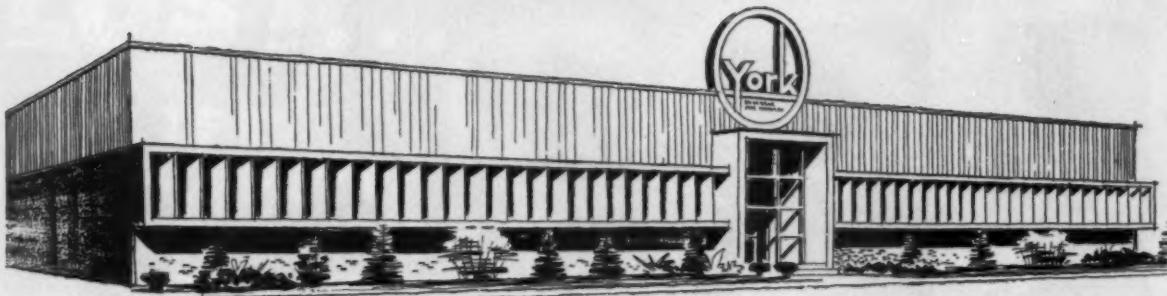
Three things should be done: (1) Estimate standard cost; (2) compare actual cost against this estimated standard; and (3) analyze the variations for future experiences and control. Why not try this approach?

I. PAUL FRIEDMAN
COST MANAGER AND ENGINEER
LIGHTOLIER
JERSEY CITY, N. J.

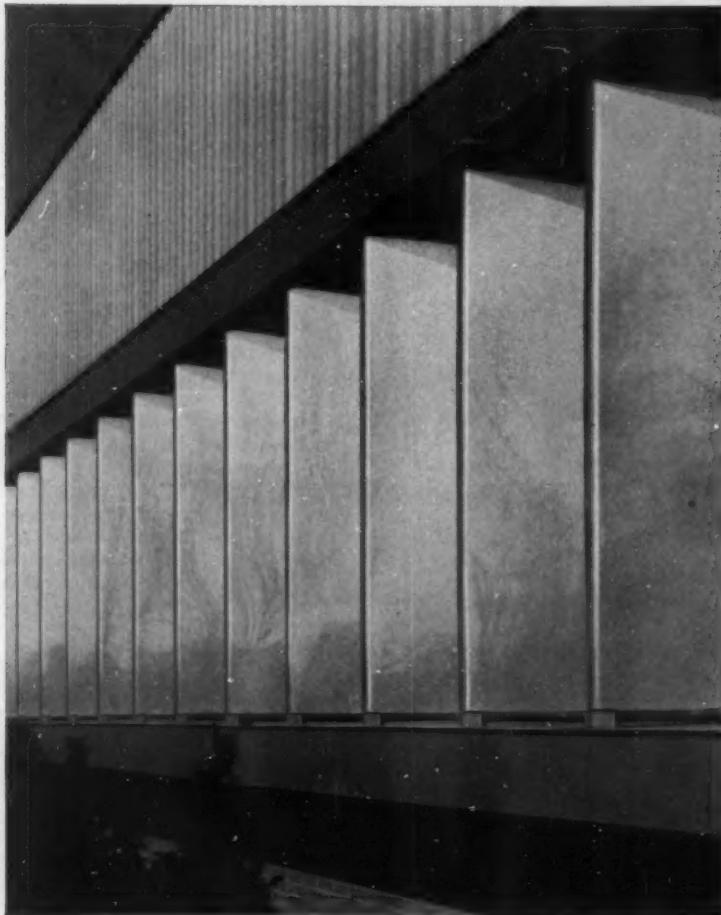
Crucial Turn for Trade

Dear Sir:

In your article A Crucial Turn for Trade Policy [BW—Jun. 16 '56, p158] you refer to the pressure brought to bear on the government by the cotton textile industry to set a quota on imports of Japanese



NEW LOOK FOR AN IVORY TOWER

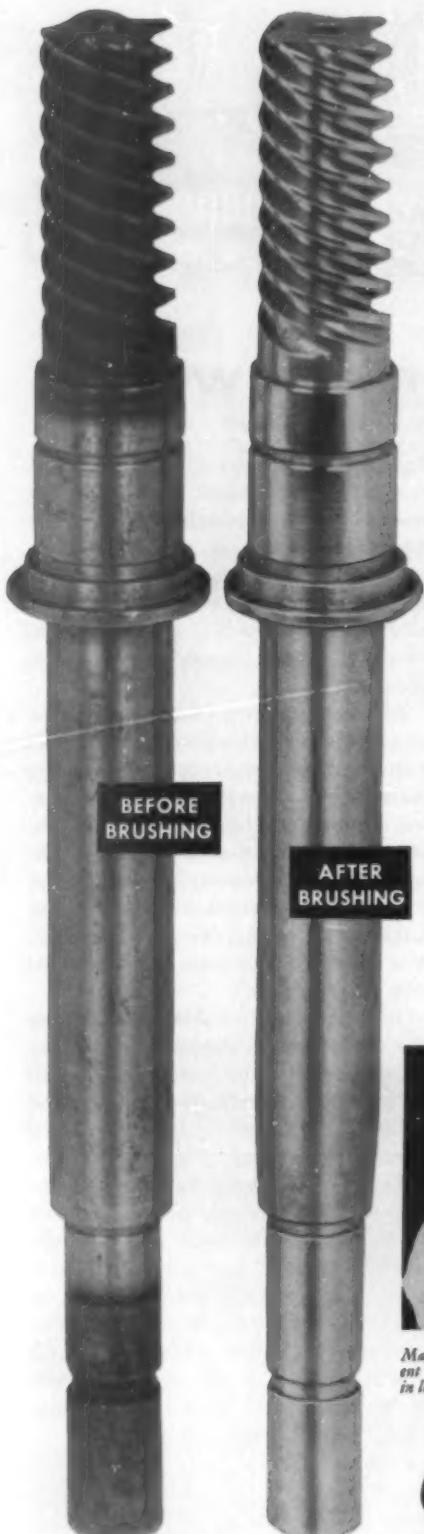


*Architect: Buchart Engineering Corp., York, Pa.
General Contractor: A. B. Seifert and Son, York, Pa.
Subcontractor Aluminum: Aluminum Structures, Inc., Pittsburgh, Pa.*

Your Guide to the Best in
Aluminum Value



THE ALCOA HOUR
TELEVISION'S FINEST LIVE DRAMA
ALTERNATE SUNDAY EVENINGS



7 finished for the price of 1

COMPLEX business machines have as many as 25,000 moving parts. Although most of these parts must meet exceptionally high quality standards, production economy is also an imperative consideration.

Take the armature shaft shown on the left, as typical. Osborn Brushamatic methods improve the finish of the worm gear from an original 30 down to 4 micro-inches, at $\frac{1}{4}$ the cost of the former method. *Seven parts finished for the price of one.*

An Osborn Brushing Analysis, made at no obligation to you, will point out how you can use Brushamatic finishing to achieve similar results and savings. Write The Osborn Manufacturing Company, Dept. A-84, 5401 Hamilton Avenue, Cleveland 14, Ohio.



Major manufacturer of business machines uses six different Osborn Brushamatic 3-A machines to finish parts in lot quantities of 300 to several thousand.

Osborn Brushes

OSBORN

BRUSHING METHODS • POWER, PAINT AND MAINTENANCE BRUSHES
BRUSHING MACHINES • FOUNDRY MOLDING MACHINES

textiles. You say, "The U. S. cotton textile industry has not been appeased, however." . . . Is "appeasement" applicable in a struggle for existence? At least one mill in southern Virginia and one in South Carolina have closed down within the last week, due to competition from the Japanese, and it is not known how many more have curtailed production (ours, for one). Isn't that reason enough to invoke the escape clause of the Trade Agreements Act? Further, the switch in Russian strategy should give fresh impetus to the need for keeping all segments of our industry strong. When a mill closes down, its labor force is dispersed throughout other fields, and cannot be recalled on short notice.

Can we compete when Japanese agents can offer our customers patterns copied from us for eight cents less per yard; tailored shirts in checks and plaids for less than a dollar each; when their labor cost is a tenth of ours; when we sold them our surplus cotton at less than our mills pay; when our taxpayers' money built them new textile machinery while ours must come from savings out of profits? Is that fair and just? We don't want "protection"; we want some form of control or leveling factor which will enable us to compete!

In a country whose economy is as rich as ours, there is absolutely no reason why these conditions should exist. Is "face saving" the reason our government has done nothing to rectify this situation? Repeatedly we have sent representatives to Washington to plead our cause. So far they have met with procrastination. It seems to me that it is about time that the politicians in our nation's capital were awakened from their lethargy. After all, the federal government does not exist in its own right. It governs with the consent of the governed. Either this sad situation must be rectified immediately or the Administration shall have sacrificed a portion of the textile industry to the god of their political and economic whims.

ERNEST R. BECKNER
WENNONAH COTTON MILLS
LEXINGTON, N. C.

Creeping Socialism

Dear Sir:

To those for whom "creeping socialism" has been only the vague catch phrase of reactionary right-wing elements, it is rather illuminating to discover it coming to life. As President of Parnassus Gal-

LOST...

LIFE PROPERTY PRODUCTION PROFITS



Eastern Iowa. Smoke billows from one of several industrial buildings where fire caused many thousands of dollars damage. (WIDE WORLD PHOTO)



Scorched remains of Philadelphia hotel gutted by million-dollar blaze. Unsprinklered building was a total loss. (U.P. PHOTO)



Fire at this Detroit, Michigan chemical warehouse caused a property loss of \$500,000. Sixty persons were routed from the two-story structure. (U.P. PHOTO)

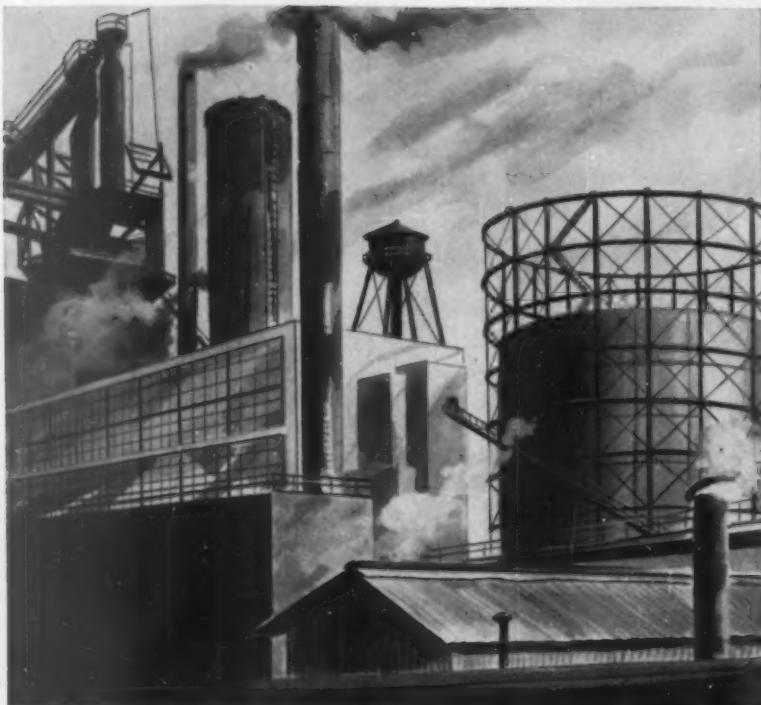
No fixed fire protection was available to combat fire at this Southwestern oil refinery and storage district ravaged by high-loss, uncontrolled blaze. (U.P. PHOTO)

Owners and users of property should take every step within means to safeguard against fire loss. **ENGINEERED "Automatic" Sprinkler PROTECTION and FIRE INSURANCE**, working together, is the only economical answer. Let us show you why.



"Automatic" Sprinkler
CORPORATION OF AMERICA
YOUNGSTOWN, OHIO

Offices in Principal Cities of North and South America



This Is the Year to Paint Your Plant

PRODUCTION BOOM IS COMING: PAINT NOW WHILE THERE'S TIME

You know what happens to plant maintenance when plants are operating at capacity — it just gets "put off." And the longer it's put off, the more costly it is to handle. In fact, if you postpone painting just one year, it can cost you double or triple today's cost!

Important days are just ahead. Prepare for them *now*. Repair and restore masonry surfaces, stop corrosion of iron and steel, improve "seeing conditions" to boost morale and production. And the way to start is to consult America's maintenance coating specialists. Use the *free* plant survey service of Truscon Laboratories, who for nearly fifty years

have led the Industry in maintenance know-how.

Keep this in mind. There is no single coating for all maintenance problems. Different surfaces, different conditions require different protective coatings. Here's where you can save money — by using specialized coatings that have greater corrosion resistance, greater weather and wear resistance. As a result, you paint less often. Your Truscon representative will provide prompt plant inspection, color guidance and coatings consultation. No obligation to you. Absolutely. Send coupon now for immediate action.

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lery, I have engaged in the business of selling pictures to the general public. Competition in this business is keen, but one expects competition in the true spirit of American free enterprise. However, it is extremely surprising to find that among one's competitors is the U. S. government. The Government Printing Office is producing 20- by 24-inch full-color reproductions to sell at 15¢ each, a price no private dealer can come close to matching.

What is a private art dealer to do? He cannot compete on a free enterprise basis with a tax-subsidized government operated business. Should he enter another field, or is there a field left, in which government would not compete with him? Do the majority of the people feel that the selling of artistic pictures is a legitimate business for the government to be in?

DAVID M. BARTLETT

PRESIDENT

PARNASSUS GALLERIES

NEW YORK, N. Y.

One Foreman Speaks

Dear Sir:

The headlines They're Fighting Over Foremen . . . Are They Management or Labor? [BW—Jun. 23 '56, p. 66] are quite flattering . . .

There is, of course, nothing sinful or wrong about union membership. Given the legal right to join a union, many foremen will jump at the opportunity. The basic reason is the perfectly obvious one: While supervisory starting salaries are high, the average salaries of experienced foremen are quite low. The unions promise to change this, and their record of accomplishment is not bad.

With a new Congress almost inevitably destined to review—and in all likelihood amend—the Taft-Hartley Law, we should consider the status of foremanship from the foreman's point of view. . . . [This] represents my own opinion and does not necessarily reflect the views of any other person or group. . . .

As a group, we stand alone a great part of the time. It is my own personal belief that ours is a field where collective bargaining does not apply; where there are special circumstances that make a union's presence actually and philosophically unsound. . . .

LOU ROSENTHAL

FOREMAN

THE ELECTRIC PRODUCTS CO.
CLEVELAND, OHIO



The slowness of shipping filled Pete with dismay
His boss used to hound him all night and all day.



Now the dog's life Pete led is all over at last
He ships RAILWAY EXPRESS—it's dependably fast!

The big difference is

Whether you're sending or receiving,
whether your shipment is big or small, whether
you're shipping here or abroad—always
specify Railway Express. You'll find it makes
the big difference in speed, economy, and
safe, sure delivery. And now you can
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Railway Express Agency's new international
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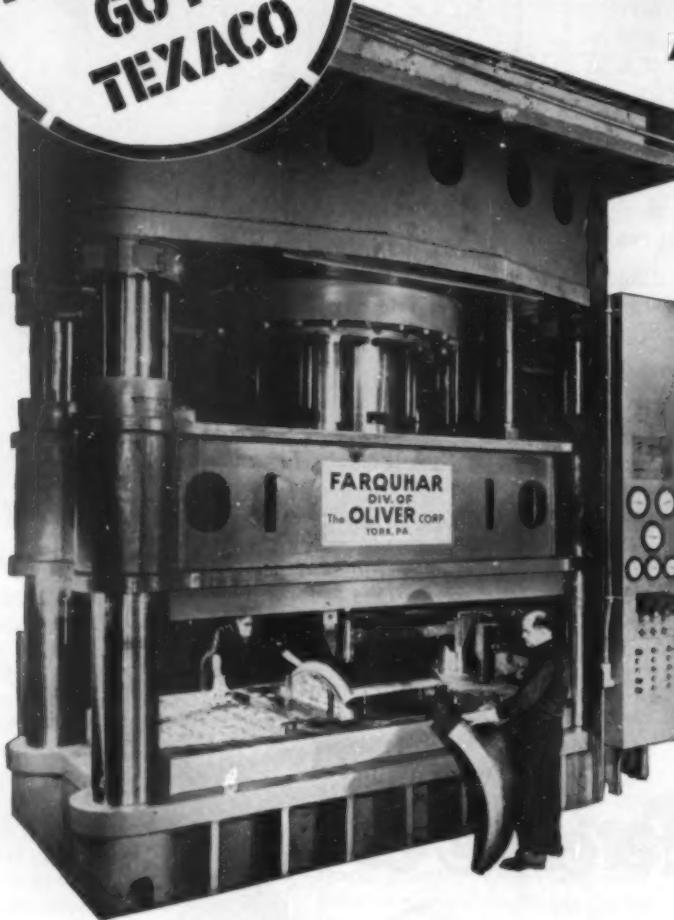


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Railway Express World Wide Service now includes affiliations with: SEABOARD & WESTERN (and connecting carriers)
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HOW OLIVER CORPORATION AVOIDS PRESSING PROBLEMS...



OLIVER CORPORATION, Battle Creek, Michigan, recently installed this 3,000-ton Farquhar press to speed production of their line of farm and industrial equipment. The hydraulic fluid Oliver selected for the new press was Texaco Regal Oil R&O. There's a good reason why: several years ago, Texaco Lubrication Engineering Service recommended this same oil to them for other hydraulic equipment. Since that time Oliver has never once had the slightest trouble due to sludge, rust or foam.

THE OLIVER CORPORATION is just one of the many fine companies which have achieved excellent results with Texaco. There are three good reasons for this wide acceptance: *field-proven* Texaco Lubricants, developed with the aid of the finest research facilities available . . . *field-experienced* Texaco Lubrication Engineers to advise on their use . . . and *fast, efficient service* from over 2,000 Texaco Distributing

Plants in all 48 States. This combination can help bring production *up* . . . and costs *down* . . . in every major field of industry and transportation. One agreement of sale supplies all your plants wherever located.

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TEXACO

INDUSTRIAL LUBRICANTS



BUSINESS OUTLOOK

BUSINESS WEEK
JULY 21, 1956



The big question industry will have to face this autumn: **How long will it take for steel to catch up?**

July has been a high-gear month for most manufacturers. Production lines have hummed—even with 85% of steel output shut off (page 25).

But steel users already have had to start conserving their thinning stocks. August will bring an even tighter-fisted dole, no matter how negotiations for a strike settlement progress.

Steel will stay on the critical list until the rekindled furnaces can put enough steel into the pipelines to ensure an even flow again.

Total industrial production has lost only about 4% of its pre-strike volume in the first round of steel-related shutdowns.

June's reading was 141 on the Federal Reserve Board's index, after you allow for seasonal factors. With steel down, July is hitting in the 134-to-136 range.

There's enough steel on the shelf to prevent any further slide until at least the first week in August, according to fabricators' reports to the Federal Reserve.

Work schedules posted at some of the big metal-using plants indicate that there still is little fear of a real steel famine.

Just last week, for instance, the auto makers turned out more cars and trucks than in any week in the last 2½ months.

Of course, the auto makers have been snapping up steel all year, even with their output off 25% from a year ago. Similarly, the big ticket appliance lines were able to put steel on the shelf when they found their output lagging 5% to 10% behind last year.

— • —

Detroit talks a 5.8-million car year, and some dealers say this means a seller's market in autos. Here's how they figure it:

There were 150,000 fewer cars in dealers' hands on July 1 than at the same time a year ago. This means it will be easier to clean up the 1956 models.

There will be about 1-million fewer passenger cars produced in the July-to-December runs than a year ago. This means that the "hot ones" in the 1957 lines will have an added hard-to-get lure.

Dealers are confident that they can move the last of the 1956 models—and still keep the profit margins worth working for.

This would be in sharp contrast with a year ago. Then, sales were spectacular. But they had to be to keep up with the flood of new cars rolling down the assembly lines. Margins were slashed in a desperate effort to move the goods.

Now, sales are firm, if not at the giddy heights of a year ago. And, even more important, **assembly line restraint has kept the stock buildup within manageable limits.**

Used car sales have been particularly robust so far this year. New car dealers take this as an omen of a strong cleanup market.

BUSINESS OUTLOOK (Continued)

BUSINESS WEEK
JULY 21, 1956

Prices of two-year-old, low-priced cars went ahead of comparable year ago levels at wholesale for the first time this year in June, according to Ward's Automotive Reports.

At the same time, dealer stocks of used cars hit a 12-month low, with late-model cars continuing in short supply.

If you want to see how much face-lifting there is going to be in the 1957 models, just look at the way tool and die makers are shipping out forms.

May shipments were 54% ahead of a year ago, according to the Tool & Die Manufacturer's Association.

Auto orders weighted heavily in this gain. They also help explain the 52% bulge in tool and die order backlog over June a year ago.

Home building has responded with little vigor to the warm weather improvement on building sites.

Work was started on 104,000 units in June. This compares with 135,000 in the same month a year ago.

This was the poorest monthly showing since January, 1954, after you allow for seasonal factors. June's starts were a shade under the 1.1-million annual rate of the last few months.

Get-ready work in financing, building permits, and contract letting shows little evidence, as yet, of any real improvement in the rate at which homes are going up.

There were 350,000 applications for VA and FHA loans in the first six months of 1956. This was below the 375,000 requests in the last six months of 1955, and considerably behind the 550,000 in the first half of last year.

Contract awards for residential building, in dollars, were off 13% in June from a year ago, according to F. W. Dodge's reports from 37 eastern states. In actual number of units, the slippage was even larger—20% behind a year ago.

There have been about 125,000 fewer homes built to date than in the same period a year ago. This has cut about \$600-million out of the dollar outlays for residential building.

Still, over-all spending on construction has managed to stay about 2% ahead of the first half of 1955.

It is the \$900-million surge ahead in industrial plant, commercial structures, highways, and sewers that has been offsetting the slide in housing.

Construction is where the steel strike may hurt the most. It could mean that contractors will do well to match their year-ago dollar volume.

Work at housing sites will be off by more than \$1-billion from a year ago, unless there is some improvement before yearend.

At the same time, it will be harder for heavy construction to hold its rate of gain. Structural were tight even before the strike. Now, the strike has disrupted schedules on bridges, industrial plants, public and commercial buildings—all among the best gainers so far this year.

CREATING A NEW WORLD WITH ELECTRONICS



How soon will you be able to see over the phone?

It may be sooner than you think. For the remarkable new Hughes TONOTRON—now used for high-fidelity transmission of maps and other navigational pictures to ships and aircraft—will make possible "face-to-face" telephone calls to and from your office or home.

The TONOTRON is only one example of Hughes Products leadership in research and development of electron tubes and related advances in electronics, such as transistors and diodes. It is with products like these that science will bring about the dynamic electronics era—in which you will have on-the-wall television, electronic control of factory production, and countless other marvels.

As one of the country's largest electronics research and manufacturing firms, Hughes Products backs its semiconductors, cathode ray tubes, and industrial systems and controls with a long record of technical accomplishments. These include the "thinking" FALCON air-to-air missile, and the self-directing Hughes Automatic Armament Control which is standard equipment on all Air Force interceptors.

Undoubtedly there is a time- and money-saving application of Hughes electronic products to your own business. A Hughes Products sales engineer will welcome the opportunity to work with your staff. Please write: Hughes Products, Los Angeles 45, California.

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**Vital
protection . . .**

**...for a very
vital
operation!**



WE'LL bet the chief cook at your house has never seen a big inch gas line—let alone one being coated with coal tar enamel. Yet, that fraction-of-an-inch of tough, durable protection against corrosion is one of the reasons why she can always depend on her natural gas supply . . . and at a reasonable cost, too.

Coal tar coatings are the best practical protection the pipeline industry has found for its multi-million dollar investment in underground transmission lines. Pipelines laid a quarter of a century ago have been unearthed and found in perfect condition, thanks to their impervious coal tar "skins."

Today, oil and gas lines all over

the nation are being protected with Pitt Chem coal tar coatings, one of the principal products of Pittsburgh Coke & Chemical Company's Protective Coatings Division. These hot-applied coatings are known for their uniform top quality and ready availability in grades for every application and service condition.

On another corrosion-fighting front, Pittsburgh recently introduced *Tarsel*, the first relatively low-cost cold-applied coating ever developed to effectively protect equipment against crude oil corrosion. *Tarsel* also shows exceptional promise in combating severe chemical and marine corrosion.

If you have an unusual corrosion

problem, perhaps you'll find a practical answer in the versatile family of Pitt Chem protective coatings. Let us acquaint you with the unique advantages of buying your coal derived products from Pittsburgh, a *basic and integrated producer*.



Credit Brakes Go On Again

- In anticipation of a new burst of business when the steel strike ends, the Federal Reserve is acting now.
- After a month of easing up on bank reserves, the Fed is putting the lid back on.
- The borrowing level won't be as low as last spring, nor as high as in recent weeks. The idea is to sop up liquidity to prevent an inflationary burst after the steel strike.

The nation's money managers changed their minds again this week. After a month of an "easier money" policy, they began pushing down on the credit brakes. This new switch to tightness, moreover, is likely to intensify after the settlement of the steel strike.

The main reason for the Federal Reserve's change, of course, is its new appraisal of the business outlook. It now feels that business is poised for a new burst of activity with the end of the steel strike. And it is afraid that any expansion in production—and in demand for credit—will mean a new outbreak of inflation.

• **Quick Change**—This appraisal of the business outlook is in sharp contrast to what the money managers were thinking a few weeks ago. They were convinced then that there would be a sharp letdown in business activity, with weakness in autos and housing spreading to other sectors of the economy (BW-Jun. 23 '56, p23).

This view was supported by the sharp drop in stock market prices, which seemed to reflect general pessimism among businessmen (BW-Jun. 2 '56, p 26.) Then, too, there was considerable pressure for a switch to easier credit—from the Administration as well as from business leaders such as Harlow Curtice of GM.

The Fed's easing up on the credit brakes had an immediate—and drastic—impact, particularly on the nation's banks. This is clear from a look at the traditional barometer of Fed pressure on banks, the level of negative free reserves (the difference between member banks' excess reserves and their borrowings from the Fed). At the height of the squeeze, in May, the nation's

banks were in hock to the Fed to the tune of more than \$600-million.

This indebtedness was dramatically reduced, as the easier policy asserted itself. By last week, negative free reserves were down to \$116-million—an over-all drop of \$500-million to the lowest level since February.

• **Short-Term Rates Ease**—The 91-day Treasury bill rate shows a similar pattern—though the money market sees other forces besides the Fed influencing it. At the height of the squeeze, the yield on Treasury bills reached 2.78%. Last week, the yield had plummeted to 2.23%—the lowest it has been since early in the year.

Though credit has been easier on a short-term basis, few business borrowers got much opportunity to benefit from it. For one thing, banks are slow to change their interest rates. For another, the steel strike brought pay-downs on loans rather than any increase in the demand for short-term credit. And the demand for long-term credit has been so heavy that corporate bond yields have continued to climb.

Now the pressure on the short-term market will resume. The end of the Fed's loosening of credit will mean a renewal of the squeeze on the banking system, and an increase in the level of bank borrowings from the Fed.

The Fed does not contemplate any further hike in the discount rate—the rate member banks pay on their borrowings—at present or any rise in reserve requirements. These dramatic and powerful weapons are not called for in the current situation. It will probably confine itself to open market operations—by selling Treasury bills. This will have the effect of lowering the amount of reserves in the banking system.

This is already being done. Last week, the Fed's Open Market Committee sold \$190-million in Treasury bills. During June, the Fed had purchased over \$300-million in bills.

• **Not to Old Peak**—It is doubtful, however, that the Federal Reserve will limit the amount of reserves it supplies to the banks to the point of driving their borrowings up to anywhere near the \$600-million level. That would be too drastic a move, especially with the steel situation still unsettled. It is much more likely that the Fed will set the borrowing level in the \$200-million to \$300-million range—not so tight as it was during the spring squeeze, but not nearly so loose as it has been in the recent thaw.

The change in negative free reserves—and in the Fed's policy—may not be reflected in the bill rate. That's because the reduced yields in the short-term bill rate result from a heavy demand for bills by corporations rather than by banks. As one Fed official explained it, "The bill rate is an indicator of corporate liquidity—it is a corporate rate, not a Federal Reserve rate."

• **Close Rein**—Fed officials are, as usual, keeping mum over the direction of credit policy, but the very fact that they admit the bill rate no longer reflects the Fed's position when it seems to signal continued easy money is an indication of the way it is moving. It does not plan to throttle the economy now that the boom has quieted down, but it doesn't intend either to take the chance of letting business get out of hand through having too much credit available.

Too much credit can easily become available at a time when inventories are being worked down. Corporations have begun making pay-downs on loans incurred during the period of inventory building.

At the same time, the Fed has been easing pressure on bank reserves. These two factors have been responsible for the big pay-down off the banks to the Fed.

If the Fed continued its easier policy, the banks might be able to get out of hock completely. The Fed is against letting this occur, because it would automatically set the stage for a big ex-

pansion in loans when the steel strike ends. So it is sopping up the excess liquidity in order to prevent any inflationary expansion.

• **Salutary Strike**—Fed authorities admit in private that the steel strike has helped rather than hindered their efforts to keep the economy on an even keel. They consider the stoppage of steel production, and the paring of inventories, as a "salutary" event. One official mused that "it wouldn't be a bad thing if we could count on an annual strike of short duration in our planning."

But it isn't the strike alone, with its creation of "an artificially induced inventory reduction," that is responsible for the change in Fed thinking. Officials also report that the automobile business seems to be working out of its slump and should be in good shape by fall.

Fed economists admit that "like everyone else, we were surprised by the trouble that Detroit ran into—it was much worse than we expected." But they now feel that conditions in the auto industry have shown a fast improvement—much more rapid, in fact, than they had believed possible. And it is this improvement that has led, in part, to the switch from ease to renewed tightness.

• **Time to Act**—The Fed is still undecided about how far its new push on the brakes will go. Undoubtedly, it will not be too severe while the steel strike is still on. The Fed feels other sectors of the economy should be allowed to take up the slack created by steel. If it pressed too hard now, the whole economy might experience a big letdown.

But the Fed's fear of inflation is apparent in the fact that it has decided to tighten while the steel dispute is still going on. It didn't want to wait until the steel strike is settled before taking action. To do that, said one Fed economist, "would mean we might have to tighten much more drastically than if we do it in easy stages."

• **Prospect**—The Fed's tactics might be upset if the strike lasts much longer than eight weeks. In such a situation, the money managers would be forced to keep credit readily available so as to cushion a general downturn.

Similarly, they could be upset if there was an unexpectedly expensive settlement of the steel dispute, with the companies granting much bigger wage hikes than expected. If this happened, the Fed would have to be much more aggressive in meeting the threat of inflation.

As it stands now, the Fed does not think that either possibility is too strong.

• **Like 1952**—Fed officials liken the present situation to the summer of

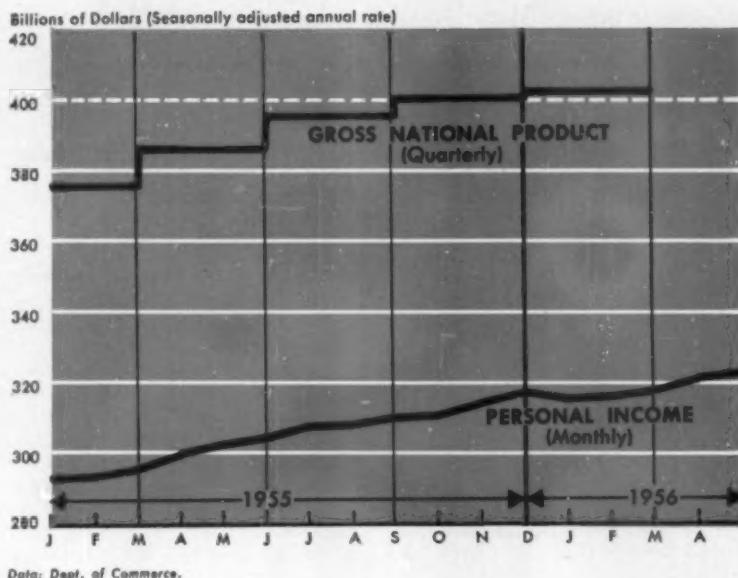
1952, when we had both a steel strike and a business turndown. In that period, the money managers were slow to tighten credit, and when the economy began a new expansionary drive in the fall, it was accompanied by inflationary pressure. When the Fed finally acted, the result was the tight money squeeze in the spring of 1953.

Both this year and in 1952, there was

a Presidential election to consider. The wish to keep out of politics was a main factor in causing the Fed to hold back any tightening action in 1952 until after the election was decided.

The Fed is still anxious to keep itself out of politics, but this time it appears to be moving earlier in an effort to avoid later—and more drastic—action.

The Revised Figures



Picture of Invisible Recession

It's official now. The U.S. economy passed the \$400-billion level in late 1955 (BW-Jan. 21 '56, p33) and is still rising (chart). And this, of course, is one reason why it has been pretty hard to see recession in the last nine months—unless you live close to an automobile plant. What economists about the turn of the year were calling a "straight line recession" turns out to have been a "rising curve recession."

• **Revising It Up**—The U.S. Commerce Dept. this week confirmed the breaking of the \$400-billion barrier. In making its annual revision of the quarterly estimates of gross national product—the market value of all goods and services—Commerce revised the figures upward. Percentagewise the changes were small, only about 1%, but they raised the first quarter 1956 figure from an annual rate of \$398.6-billion to \$403.4-billion. The revisions also put the last quarter of 1955 over \$400-billion.

Commerce's estimate for gross national product in the second quarter

is not yet available, but the steadily rising curve of personal income suggests that the second-quarter figure will be well above the first-quarter mark.

• **Catching Up**—Commerce Dept. statisticians revise their estimates of gross national product each July. Then the figures for the previous year and for the year to date are revised all at once. The department is constantly accumulating new data—from tax returns, for example—that suggest revisions. It is all held and put through in one annual overhauling of the figures.

This year's increases came across the full sweep of components going into the figure for total product. They seem to indicate simply that the statisticians had not reflected the full buoyance of the economy in making their quarterly estimates.

The details that go into making up the \$403.4-billion figure will be published in the July issue of the Commerce Dept.'s Survey of Current Business.

Steel Famine Hits Construction

● Steel strike leaves contractors without the plates and structures they need. Shutdowns are multiplying.

● The oil drilling business is hard-hit, too. It's hard to lay hands on the pipe to finish wells now in progress.

● Meanwhile, negotiations to settle the strike got down to fundamentals for perhaps the first time.

The threat of industrial anguish from the steel strike became a reality this week. As predicted (BW-Jul.14'56, p23), the big construction projects that gobble up heavy steel so fast are beginning to shut down, one by one. But the economy as a whole is still thriving.

The view obtained by BUSINESS WEEK reporters in the field is confirmed by the trend of allocation requests that are beginning to pour into Washington. Steel is being doled out strictly on a defense priority basis.

• **Theory**—When the steel workers walked out on July 1, steel inventories were at a record level of about 20-million product tons. Since industry had been consuming finished steel at an average rate of 1.6-million tons per week, simple division would indicate that industry had enough steel to run on for almost three months without cutting its rate of operation.

Only trouble is that dividing total inventories by weeks tells you nothing about when the real pressure of the steel strike would come. It's coming already—in the third week of the strike. For steel inventories are very badly balanced. Shortest of all are heavy plates and structural—urgently needed for the country's mammoth capital expansion program.

• **Negotiations**—Meanwhile, really serious efforts are being made to bring the strike to an end. Government prodding resulted in a basic reconsideration of their position by both industry and union. After largely pro-forma discussions in Pittsburgh among the industry's three-man bargaining team, union officials, and federal mediators, the "president's group" met secretly in New York. This group is made up of the top executives of the 12 leading steel companies. Also to New York came David McDonald, steelworkers' union president, and Arthur Goldberg, union counsel. The larger union committee was left in Pittsburgh.

By midweek, the strike's settlement was not yet in sight. But for the first time since it began—indeed, perhaps for the first time since bargaining started on June 1—those truly basic discussions, prerequisite for reaching agree-

ment, were being conducted with a sense of urgency.

• **Reality**—Throughout the country this week, BUSINESS WEEK reporters found outfits involved in heavy construction beginning to feel real pain—and expecting it soon to worsen:

In Pittsburgh, one large heavy-construction contractor has only one job going, out of about eight that would be running if there were no strike. Much of its equipment and contracts are tied up in steel mill jobs that, of course, are shut down. Its big railroad jobs are off, too.

The company will keep working on another big job, building foundation structures for the Penn-Lincoln Parkway, until the steel is gone—a matter of a couple weeks longer, an official guesses. "We're eating up our steel stock," he says, "and when that's done, we're done."

In Chicago, Pullman-Standard Car Mfg. Co. will start layoffs in the fabricating department early next week. These will spread until the whole plant is down by mid-August—whether or not the strike gets settled before then.

In Houston, the carbon steel bins in warehouses are empty. Before the strike started, warehousemen said they had enough to last a month or six weeks. Now all they have left is cold-rolled steel, and suppliers say that will be sold out in a month to six weeks if the strike lasts. Says Richard Schill, vice-president of Schill Steel Co.: "We are completely sold out of plate, structural, and wide-flange items. After next week, there's no prospect of getting more cold-rolled steel."

In the Philadelphia area, lack of steel has halted a \$3.5-million Pennsylvania State University dormitory and dining hall project, an office building annex in Philadelphia, a \$4-million Western Electric assembly plant in Allentown, and a big Tidewater refinery project in Delaware. "And," moaned one of the builders, "in two weeks, we'll be in even worse shape."

In Atlanta, Robert H. Strickland, executive vice-president of the Georgia Branch, Associated General Contractors, says contractors are already "hurt-

ing"—there's already a six- to nine-month drag in getting some types of structural steel. Large jobs already started in most cases have enough steel on hand or on order to go ahead. "The main hurt," Strickland says, "is being felt by those planning new construction who can't get started until the mills are back in operation."

In Tulsa, oil pipe is getting desperately short. Smaller companies and individuals who started drilling wells before the strike will be forced to stop all operations when they've completed wells in progress. One of the biggest suppliers in the area says: "We have no inventory of pipe, and there's none in our entire supply group."

Suppliers are in better shape in inventory of goods other than tubular, although orders for all items have been heavy in anticipation of price increases. Suppliers figure they have about 30 days' inventory of items other than pipe.

• **Market Graying**—Outside heavy construction and oil-drilling, you can find other steel-users who are seriously worried—some because they need stainless or special items that are in short supply, others because they were too cautious in accumulating inventory before the strike. But most manufacturing industries still seem to be in good shape as far as their steel inventories are concerned.

Very few companies say they are cutting orders of other materials such as copper or rubber to maintain balanced inventories during the steel squeeze. The gray market is growing gradually. Some companies admit to paying premium prices—which are ranging double the pre-strike levels, or even higher. Still, many more concerns insist they're not interested—yet.

Some manufacturers brag that they laid in heavy enough supplies to last them for a couple of months longer—one Connecticut manufacturer said he had enough for a year.

• **In Detroit**—The auto companies so far are riding out the strike comfortably, and their major parts manufacturing facilities are going right along with them. Heavy inventories of autos have restricted production anyway, and some 1956 model production will cease within 30 days. General Motors will feel it if the strike lasts much more than 30 days. Ford, which makes nearly 50% of its own steel, can go until mid-November, and Chrysler can last through October.

Independent parts makers around Detroit who are not tied directly to the major auto firms are in worse shape. They figure to go through August, but

not beyond that. The tool and die industry will be hurt badly within another three weeks. Some die set shops report they are now paying a 100% premium for slab steel from steel plants that are still operating under contract extensions.

• **View From Washington**—Reports and complaints flowing to Washington support the nationwide picture that **BUSINESS WEEK** reporters get: a still relatively comfortable steel situation for most manufacturers—but sharply increasing pain in the general field of construction and development.

The Commerce Dept.'s Business & Defense Services Administration, which handles allocation and priority assistance, says requests show that new construction and planned expansion of existing facilities are already feeling the pinch.

Plant additions, schools, water works, oil pipelines and oil country goods, housing, and road construction are

some of the main projects calling for government help.

• **Parceling It Out**—Under the Defense Production Act, BDSA thinks it has a fairly simple criterion for judging such requests. If you call or write BDSA for help, the agency asks you if you have a direct contract with the Defense Dept. or the Atomic Energy Commission. If you say "no," BDSA says, "Sorry." If you say you have a direct order or a subcontract, BDSA tells you to go to the Pentagon or AEC with your request. Then the contracting government agency sends it to BDSA—with a priority rating if it is a prime contract.

BDSA then determines the percentage of production needed to fill all such orders for a month or quarter, orders set-asides from the producing mills or freezes warehouse deliveries accordingly.

At midweek, BDSA announced new rules, effective next week, that allow distributors to ship freely until their supply of an item drops to 50% of the

June 30 inventory of that form of steel.

• **Despite the Strike**—Outside the industries or areas directly affected by the steel strike—such as the railroads, coal mines, construction industry—the general economy is doing extremely well. The Federal Reserve Board Index of Industrial Production is down only about 4%, retail sales are strong, the stock market has stayed healthy, and gross national product continues to move along above its all-time record \$400 billion level (page 24).

The one sour note, apart from the strike itself, is the sag in housing starts, which dropped last month to their lowest annual rate since January, 1954. Contracts for future home building also declined.

However indications are growing that, if the steel strike doesn't last so long as to squash business and create widespread unemployment, the economy will come out of the strike with a bounce—an inflationary bounce.

Trade and Aid: Hard Road Ahead for Randall

Former Inland Steel head must find policy that will both halt Russia's economic drive, win back balky Congress.

In an old-fashioned office next door to the White House, Clarence B. Randall, former head of Inland Steel Co., and long-time Eisenhower trouble shooter on foreign economic problems, tackled this week his toughest job yet.

As new chairman of the President's Council on Foreign Economic Policy, Randall will draft a U.S. policy to counter the new Russian economic offensive.

At the other end of Pennsylvania Avenue, Congress was busy demonstrating just how tough the job is. A conference committee of the House and Senate was putting the finishing touches on a foreign aid bill that will be at least \$1-billion under the \$4.9-billion requested by the President. This action climaxes a series of Congressional rebuffs to Eisenhower's foreign economic policies.

• **Trend Is Clear**—The paradoxical fact is that just as the Administration is looking for new foreign economic policies to meet the changed world situation, opposition is rising on Capitol Hill to continued large-scale foreign aid, and pressure is growing for more protection against foreign imports.

The Congressional record this session shows the trend clearly. Take just these two major items:

• Congress refused to act on Eisenhower's urgent pleas for U.S. membership in the Organization for Trade Cooperation—key measure of the President's foreign trade liberalization pro-

gram. The Administration sees OTC as the main hope of averting, through international cooperation, a slow drift back to economic nationalism and discriminatory trading.

• Congress rejected both of Eisenhower's major new foreign economic aid proposals—for authority to commit up to \$100-million a year for 10 years for long-term development projects in underdeveloped countries, and for more flexibility in administering economic aid. The long-term authority was watered down to a vague statement of Congressional intent to vote some aid as long as the Communist threat continues. New strings were tied to the administration of economic aid funds: 80% must take the form of loans, and no more than 25% can go to any one country.

• **Firm, but Anxious**—Despite these setbacks, the Administration still is determined to hew to its general policy line on foreign trade and aid.

But the Administration is weighing anxiously the apparent cooling of public enthusiasm for its internationalist foreign economic program. Most observers agree that so far it's not much more than that: just a cooling of the kind of zeal—almost a religion—that Cordell Hull aroused for the reciprocal trade program in the mid-1930s.

• **Dead Center**—There is still a general willingness to continue carrying the load of Free World leadership. And the more than \$3.5-billion worth of

foreign aid which Congress is appropriating still is a lot of money. But there's a deepening Congressional sense of frustration over a task that seems thankless and inconclusive, over spending that seems to show too little concrete success.

For the moment at least, this feeling has frozen foreign economic policy just about on dead center. So far there is no retreat, but the power of the protectionists and the opponents of foreign aid is growing. For example, a cotton import quota amendment failed in the Senate by only two votes. At the same time, the freer trade lobby is weakening.

• **Roots**—The upsurge in protectionist demands from U.S. industry has real economic roots. Europe and Japan are back in business stronger than before the war. The U.S. economy is stronger too, and our strong industries are willing and able to compete. But stiffening foreign competition has some older, less adaptable industries really scared.

• **Uncertainty**—In the aid field, election year political skirmishing contributed a lot to Eisenhower's setbacks.

But probably most important was the uncertainty—in the Administration as well as in Congress—as to what foreign aid is supposed to accomplish now that the struggle against Communism has shifted from the military to the economic and political battlefield.

Administration leaders still don't agree among themselves on such basic questions as how to divide aid between neutrals and allies, how much aid to give to state-owned industries how much aid to funnel through international organizations.

Big Top Quietly Steals Away

Ringling Bros. and Barnum & Bailey bowed this week before the mounting difficulties of doing business on wheels. Management of the circus ended its 1956 tour in Pittsburgh, four months early. "The Greatest Show on Earth" started a sad trip back to winter quarters in Sarasota, Fla., and John Ringling North, board chairman and head of the circus, announced that it may never again play under the big top.

"The tented circuit is . . . a thing of the past," North said. "We're considering plans that may involve an almost completely mechanically controlled exhibition."

• **Plans**—North wouldn't elaborate much on these "mechanical controls." But for the 1957 circus season—possibly starting as early as this fall—the show probably will be limited to indoor performances in cities with suitable arenas.

But this doesn't mean that shows under the big top are definitely gone forever. Ringling Bros. has been studying plans for a large and radically different tent that can be erected without poles by hydraulic power, using only about 40% of the manpower now needed. Whether the circus goes out on road tours again may depend on developments such as this.

Even before the big show started its 1956 season in April, rumors of impending change were heard around Ringling's quarters.

• **Plague of Troubles**—The season launched in New York's Madison Square Garden was anything but favorable.

A two-union organizing drive brought picket lines outside the Garden and at every other circus stand, cutting attendance. Bad weather plagued the circus most places it went. Animals escaped, causing damages and some injuries. Freak winds destroyed the main tent at Geneva, N. Y., and injured 15 persons.

Circus sites (at least 17 acres are needed) became more and more of a problem. Many choice sites have been lost to housing developments, industry, and shopping centers. A new site leased in Buffalo cost the circus one performance: A grave and headstone found in the middle of the arena forced complicated replanning of the site.

In city after city trains arrived late, equipment was caught in traffic jams. Shows started as much as four hours late. Near the end of the tour circus people were quipping that Ringling's was the "Latest Show on Earth."

To cap it all, the New York State Labor Relations Board charged Ringling Bros. with violating the state 75¢-an-hour minimum wage law in paying

roustabouts. If the charges should stick, the circus would be liable for back pay to 1951—when the law went into effect—and might be faced with similar crackdowns in other states.

• **Hit by a Trend**—Had attendance on the road held up, the accumulated problems would have been shrugged off; they have been before. But radio, television, outdoor movies, and the ready availability of recreation areas in a highly mobile age have cut circus audiences. In a time of rising costs, attendance has too often been below the break-even point.

Some time ago, North was reportedly seeking a "financial wizard" to help the circus make ends meet. At the start of this season, North tried an economy program. Some savings were made during winter months by pruning out the deadwood in year-round work crews, but the circus' daily "nut"—its daily operating cost—for its proposed 40-week season rose to \$24,000—up \$2,000 a day from last season.

This posed an important problem. In 1955, the circus performed before 1.8-million persons in 33 states, and grossed \$6-million. Nevertheless, it operated in the red, as it has for several years. Its reserves were low because of the drain in recent years to pay off the costs of the disastrous Hartford (Conn.) fire. The annual losses couldn't continue.

• **Big Slice**—Two high-gross indoor dates at Madison Square Garden and the Boston Garden, plus a third at San Francisco's Cow Palace account for more than 40% of Ringling Bros.' annual \$6-million gross.

Generally, the six-week stand in the 15,000-seat Madison Square Garden accounts for about one-third of the year's gross. It's an expensive stand, with rental running about \$10,000 a day for the Garden, but weather and other operating hazards are held to a minimum. This year, despite picketing, circus business in the Garden was down only about 7%—the result, says North, of timing that missed both Easter and Passover holiday business. Whatever the reason, the Garden stand this year didn't provide the usual comfortable financial cushion for the road stands.

Usual gross for the one-week stand in the 13,900-seat roofed Boston Garden is \$250,000; this year, circus management says it was only 4% to 5% under 1955.

• **The Tough Part**—The circus picks up the remaining 50% to 60% of its money the hard and costly way, from some 170-odd outdoor dates played under canvas in one-night and two-night stands in a criss-cross of the country.



RINGLING'S under canvas may have played to its last small-town audiences.

That's why North's cost-cutting plans center on the hinterlands. Circus people estimate that limiting appearances to large indoor arenas would save much of the annual transportation cost—in 1955, a reported \$500,000.

It would cut just as sharply into the traveling work force, now about 500 or more roustabouts, riggers, and other non-performing people. It's estimated that fewer than half that many would be needed indoors.

• **Rust of Tradition**—Traditional showmen among the circus people object to dropping tent appearances. However, North and Michael Burke, executive director of Ringling Bros., see it as a necessary course if the circus is to stay in business. Because Ringling Bros. has been "encrusted with traditions" of the road and tanbark, it has been "awfully slow to adopt modern, up-to-date business practices. It's shot through with anachronisms and outmoded practices," says Burke. Among the worst have been non-economic road tours.

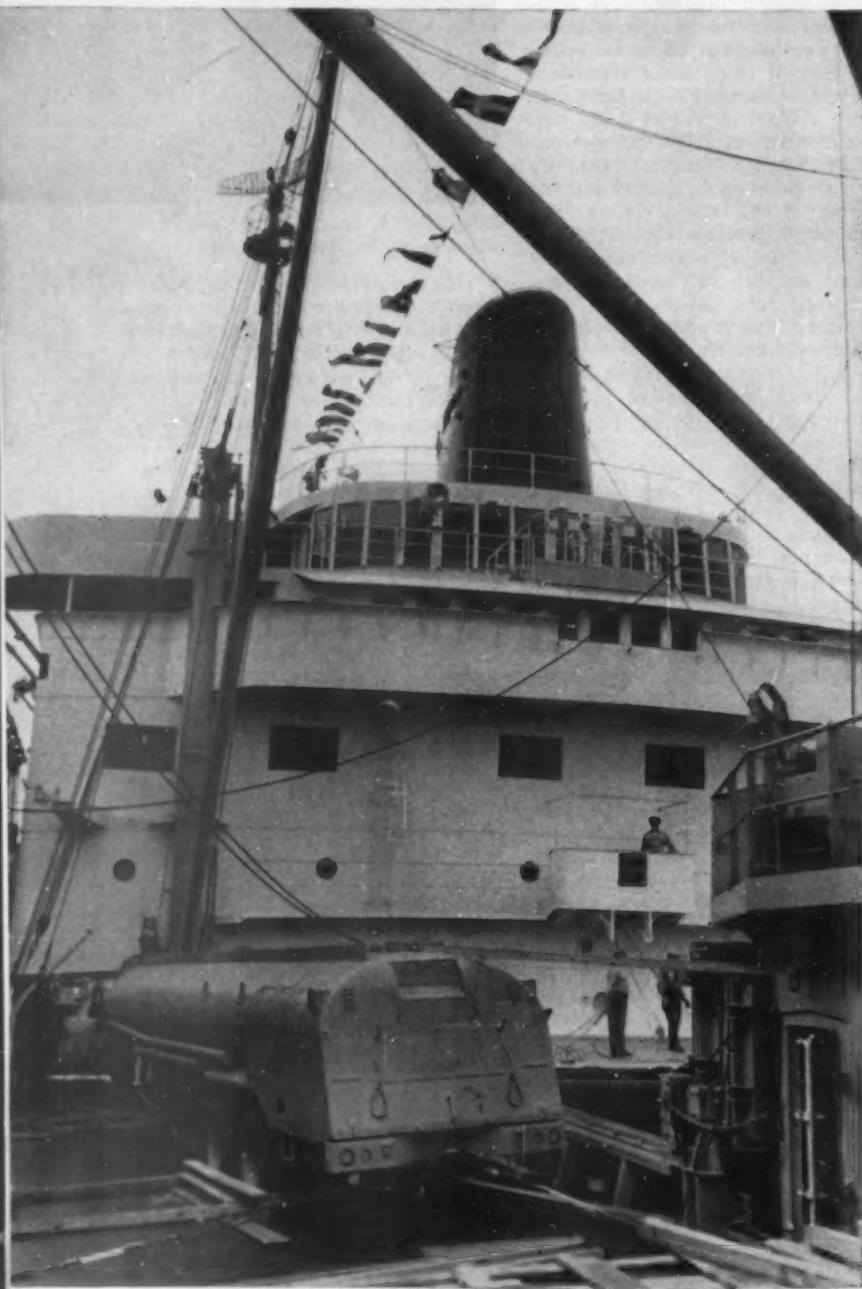
Ringling Bros. isn't the only traveling circus to run into difficulties this year. The Clyde Beatty Circus folded in New Mexico, but may be returned to the road under new ownership. King Bros. Circus fell victim along with a number of smaller shows among the 40-odd, that started out this season.

For 1957, North plans to open as usual in New York's Madison Square Garden in April, after that to play in Boston Garden and other large indoor auditoriums and arenas—if necessary, streamlining the big show to fit.

• **Wishful Thinking**—Traditionalists say it's only a question of time before Ringling Bros. returns to the road in more modern garb. Right now, though, there is no evidence that theirs is more than wishful thinking.

Once considered a pest, the passenger is beginning to look good—financially—to cargo ship owners. Now, to lure the travel dollars, they're . . .

Sprucing Up the Freighter



FREIGHT

Sidewalk superintendents have a grandstand seat behind glass-enclosed area under ship's funnel, from which they can supervise cargo loading.

BON VOYAGE PARTIES that swarmed over the President Adams before it sailed on its maiden round-the-world voyage last weekend got the surprise of their lives. Instead of the sparse accommodations, battleship-gray decor, and linoleum-clad floors traditional to cargo-passenger ships, they saw what some described as the last word in shipboard living (pictures).

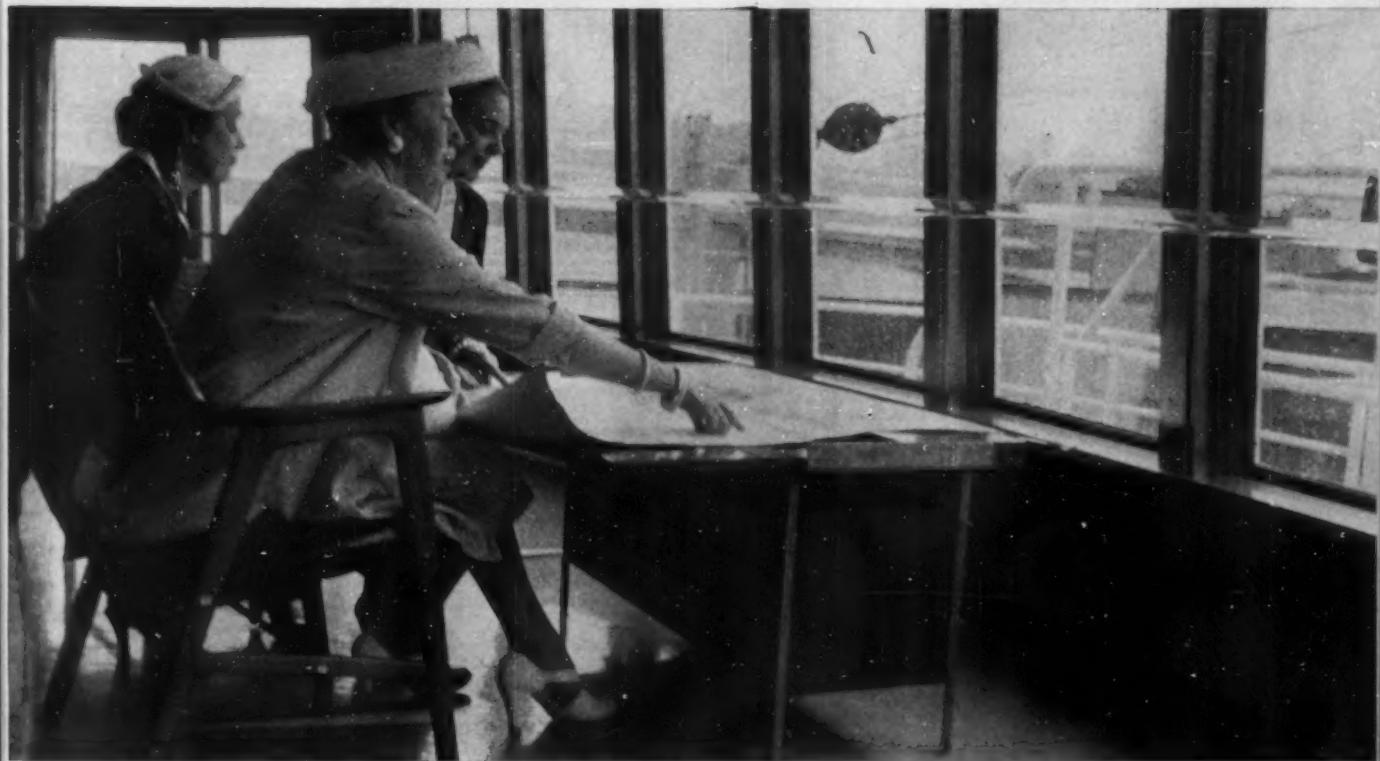
There were penthouse-like lounge decks equipped with record players, television, and short-wave radios; a mosaic-tiled bar; a "passenger's bridge" featuring the same view as from the captain's domain; in staterooms, picture windows replaced portholes, and every cabin had a short-wave receiver. All the ship lacked was a swimming pool.

The President Adams is the fourth of a new fleet of luxury cargoliners that American President Lines is sending down the ways. The steamship line got the idea of refurbishing its passenger quarters last year when it bought four 20-knot, 12,800-ton Mariner-class freighters. The first of the four sister-ships went into service last November.

• **\$13-Million Decor**—Sprucing up the cargo handling and the passenger facilities cost the line nearly \$13-million.

SUITE features private bath, short-wave set, and big picture windows.





PASSENGER'S BRIDGE on S.S. President Adams has a chart table that lets tourists test their navigation skill.

The interior design—on a subdued modern nautical theme—is the work of H. C. Burroughes and J. R. Patterson, industrial designers of New Canaan, Conn. Anshen & Allen, San Francisco architects, designed the passenger deck and lounge deck areas.

• **Payoff**—APL says its luxury cargoliner

service is sailing high, financially. All four ships are booked well in advance for complete world cruises. One reason for tourist interest: Round-the-world fares on the President Adams range from \$2,700 to \$3,750—compared with, say, the Caronia, whose rates run from \$2,975 to \$10,000.

LOUNGE is a penthouse-like enclosure perched atop midship, equipped with record player, television, short-wave radio, and—of course—a small bar.

The President Adams—a one-class ship—carries a maximum of 12 passengers. According to international law, cargo-passenger ships can carry that many passengers without adding any extra crew. Over that, the crew must include a ship's doctor and full-time radio staff.

SUN DECK located astern of lounge is sheltered from wind.





Bill of Materials-Federal and State

1953

SAND, GRAVEL, CRUSHED ROCK (MILLIONS OF TONS)	326.
CEMENT (MILLIONS OF BARRELS)	42.8
ASPHALT AND TAR (MILLIONS OF TONS)	4.55
ALL STEEL (MILLIONS OF TONS)	1.331
STRUCTURAL STEEL (MILLIONS OF TONS)	.592
REINFORCING STEEL (MILLIONS OF TONS)	.539
CORRUGATED STEEL PIPE (MILLIONS OF TONS)	.112
LUMBER (MILLIONS OF BOARD FEET)	288.6
REINFORCED CONCRETE PIPE (MILLIONS OF TONS)	2.065
CLAY PIPE AND TILE (THOUSANDS OF TONS)	38.
TIMBER PILING (MILLIONS OF BOARD FEET)	62.
GASOLINE, DIESEL FUEL AND LUBRICANTS (MILLIONS OF GALLONS)	500.79
EXPLOSIVES (MILLIONS OF POUNDS)	68.50

Data: U. S. Department of Commerce, Bureau of Public Roads

DEMAND for roadbuilding materials and equipment will show the sharpest rise in history next year. The initial impact of the new multibillion-dollar federal highway program is expected to boost the market for these products by more than 20%.

The effect of this program on demand for construction materials is shown in the table above. The estimates are only forecasts of what looks most likely at this stage. No allowance is made for any increase in non-federal spending on new road construction. Should state and local spending con-

tinue to rise, estimates of materials demand would have to be revised upward.

Over-all sales of materials and products used in highways in 1957 will zoom nearly \$500-million next year to a record level of \$2.6-billion. At the same time, sales of new construction equipment to build the roads may hit a new peak, up several hundred million dollars for the year.

• **Biggest Increases**—On a tonnage scale, the major highway materials—stone and sand, cement, asphalt, and steel—will feel the biggest increases.

Materials demand will continue to

grow during the years following 1957. But the rate of increase for federal-aid construction will diminish as roadbuilders catch up with the big new program.

• **Construction Kitty**—Since the states are required to pay a share of the highway costs under the new federal program, the federal grants assure a construction kitty of more than \$9-billion for the 36 months ahead. This total tops the current rate of federal-aid construction by over \$4-billion.

Actual spending on new construction, of course, doesn't move so fast as the



Filling Loopholes

New House group set up to probe tax code hints that one likely early target will be industry's fast write-offs.

Congress this week set up a new group to plumb the intricacies of the tax code. It gave the group a broad mandate: authority to investigate, subpoena witnesses, and even rewrite the tax code if it sees fit.

Democrats appointed to the group are already dropping hints about its likely first targets for investigation. They say it could conceivably hold hearings in December on the subject of loopholes in the tax code—particularly fast tax write-offs for industry.

The group is the seven-man Subcommittee on Internal Revenue Taxation. It will ride herd on tax administration and tax-writing in place of the more unwieldy 25-man House Ways & Means Committee. All its members are drawn from Ways & Means.

- **Two Experts**—Head of the subcommittee is Arkansas Democrat Wilbur Mills. He's one of Capitol Hill's most influential tax experts—and he has been one of the House's severest critics of fast tax write-offs for new plant and equipment. The Republicans' top man is Rep. Richard M. Simpson, of Pennsylvania. He, too, is reckoned a leading tax authority in the House.

The Democrats say they won't use the new group as a factory for political ammunition for use in the campaign. But indications are that once the group meets to name a staff, its investigations during the fall will cover:

- Tax code administration. There's talk among tax lawyers that the 1952 reorganization of the Internal Revenue Service was hastily conceived.

- The 1954 tax code revision. Again, some tax lawyers say there are even more "bugs" in the revised tax code than appeared when it was first enacted.

- Loopholes. One of these, in Mills' view, is the fast tax write-off for industry. The write-off regulation, he holds, was intended to get private industry to build defense plants fast during the Korean War, and has since been broadened to provide an economic stimulus for industry generally.

- **Will It Live?**—The Democrats intend the subcommittee to be a permanent body, and it will be if they retain control of the House next year. But Republicans on the Ways & Means Committee are cool to the new group. They say its work will duplicate that already done by the Joint Committee on Internal Revenue Taxation.

Highway Construction

1954	1955	1956	1957	1958	1959	1960
357.	403.	544.	664.	722.	753.	774.
49.4	61.6	74.	94.5	102.9	107.4	110.5
5.26	5.85	7.15	8.73	9.49	9.90	10.18
1,748	2,085	2,720	3,332	3,625	3,779	3,885
.816	.983	1,442	1,760	1,914	1,996	2,052
.680	.807	.931	1,136	1,236	1,288	1,325
.136	.148	.165	.201	.219	.228	.234
333.	385.	403.	492.	535.	558.	573.
2,334	2,64	2,89	3.29	3.57	3.72	3.83
42.	47.	55.	67.	73.	76.	78.
71.	82.	119.	146.	158.	165.	169.
578.16	652.	744.	908.	987.	1,029	1,059
79.12	90.	102.	124.	135.	141.	144.

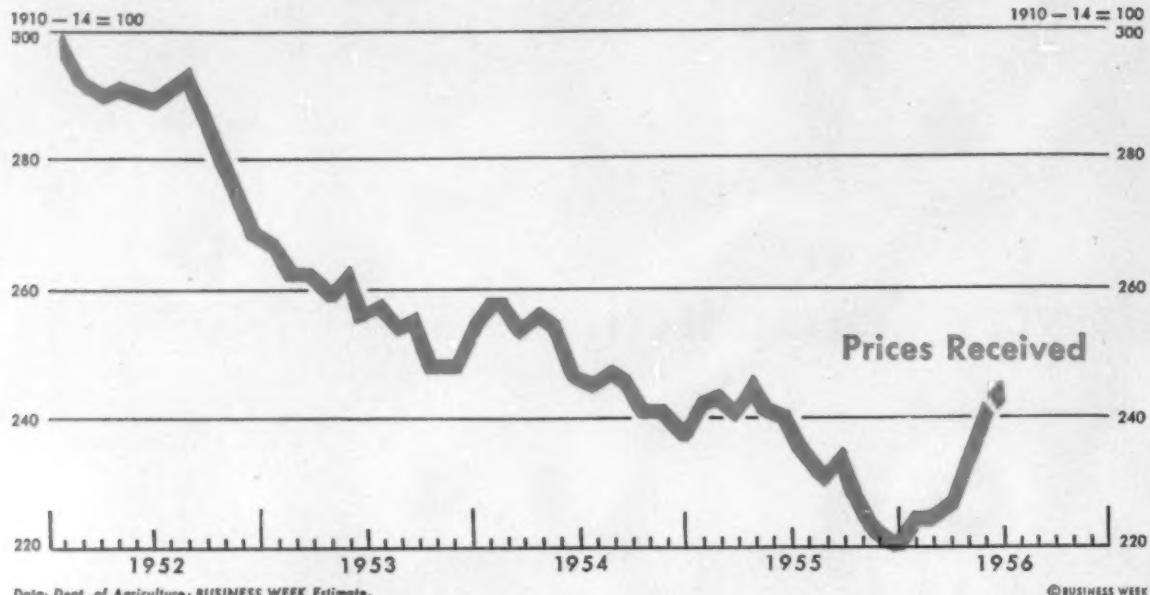
release of funds. But the big expansion in federal aid in itself is enough to raise the yearly outlay for new streets and roads to more than \$8-billion by 1960. That's nearly \$2.5-billion above the estimate for 1956.

The increases in federal-aid expenditures will be sufficient to push total national spending for new highways up more than 40% in four years. And if states and local governments should continue the trend of recent years and step up their own expenditures for new highways, from year to year, the annual total for the nation will rise even faster.

Increased use of materials each year depends on two things:

(1) Ability of the states to put more work under construction, and (2) the kind of highways to be built with the additional money. Major emphasis of the new federal program is on super-highways on the interstate system of main trunk routes. More money will go to the 6,700 urban miles of the system than to 33,300 miles of rural roads. But the urban mileage takes longer to get under construction. And a bigger percentage of the cost has to be invested in right-of-way.

FARM PRICES: The long drop ends



Data: Dept. of Agriculture; BUSINESS WEEK Estimate.

And the Gloom Begins to Lift

After a five-year drop, farm prices are making a solid and sustained turn upward, giving a lift both to business and to Republican prospects in the November election.

Ever since the Korean War, the spending power of the farmer has been declining. And for much of that time this has been the one major drag on an otherwise booming economy. That decline is over, and even a small rise is in prospect. The upturn seen for the rest of 1956 is not big enough to solve all the problems of the farm equipment industry, which is fighting a sharp drop in sales, or of the makers of agricultural chemicals, who are squeezed between lagging sales and rising costs. But it's the first break in the gloomy farm picture, and will leave farmers in a freer-spending mood than last year.

• **Political Meaning**—For Democrats, the price reversal threatens the one real pocketbook issue they had been counting on to pick up votes, particularly in the Midwest. Farmers may well go to the ballot box with much of the fire gone from their resentment over the long decline. Here's why:

- The rise—maintained without a break for six months—has carried the average farm prices 11% above the low of last December (chart).

- Higher prices are boosting farm income despite a rise in operating costs. Up to a month ago, the Agriculture Dept. was forecasting another year of

declining income. Now the prospect is for a modest rise—and that means the farmer will have more money for family living expenses and for new production goods such as machinery and fertilizer.

- There will be a seasonal dip in prices when the harvest season begins, but powerful forces are at work to hold prices above the lows of 1955. The average is now higher than the year-ago level for the first time in four years, and Agriculture Dept. experts expect it to stay there at least for the rest of 1956.

I. Policy Shift

A fundamental shift has occurred. When the Eisenhower Administration took office, it was convinced that farm prices had to drop if the problem of mounting surpluses were to be solved. There are many signs that the Administration is convinced the drop has gone far enough.

Agriculture Secy. Ezra T. Benson made a series of decisions regarding the new soil bank, for example, that have tended to strengthen prices. And he already has announced a \$2 support level for wheat next year, 14¢ higher than the minimum the law allows.

This week, wheat futures jumped when the government announced it no longer would sell wheat to exporters at cut-rate prices. Such moves are in line

with the new Administration attitude about prices.

- **Soil Bank**—The Administration's chief reliance for solving the problem of surpluses now is the soil bank. It also is shaping up as a strong factor under rising farm incomes. Farmers in Iowa, for example, rushed to sign for soil bank benefits, which apparently may average between \$400 and \$500 in that state. Close observers believe many farmers will come out of their dealings with the soil bank money ahead—by retiring their poorest land and increasing output on the acres they retain in cultivation. This may cause a new round of surplus problems in the future, but right now it is bolstering farm income.

- **Higher Supports**—There have been a number of other developments that have helped improve the farm picture. The farm law adopted by Congress this session contained important increases in the level of price supports. And Benson has made other increases by administrative decision. Wheat supports, for example, have been increased from \$1.81 a bu. to \$2 on this year's crop; corn supports have gone from \$1.40 a bu. to \$1.50 for farmers participating in the acreage control program.

More important, Congress put a \$1.25 price support floor under corn grown outside the acreage program. Last year, this so-called "free corn" was selling at \$1 a bu. in the major produc-



Sinclair Fuels America's "Main Lines"

Every working day, the equivalent of four 50-car trainloads—roughly 1.6 million gallons—of Sinclair oils, greases and fuels moves out to "keep 'em rolling." Sinclair Refining Company serves almost every prominent railroad in America—approximately 200 in all—and holds first place in the field of railroad petroleum suppliers.

Sinclair pioneered in the development of diesel starting fluids and produced the world's first anti-rust diesel fuel. Another Sinclair project has been to provide a special heavy fuel oil that can be produced economically for gas-turbine locomotives, which operate on the

same principle as the engine in a jet plane.

As important to a railroad as products of high quality is the ability of its supplier to deliver the desired material to the proper place at the scheduled time. Sinclair's "main line" ranking with the nation's top railroad men testifies to the high caliber of its manufacturing, research and distribution facilities.

SINCLAIR

A Great Name in Oil

ing areas of the Midwest. It was a major cause of slumping farm incomes—and political discontent—in the Corn Belt. If the new program works as its backers are sure it will, no similar drop can occur this year.

• **Lower Production**—Acreage reductions and adverse weather are combining to lower the crop production outlook this year (BW-Jul.14'56,p30). An over-all drop of about 3% is in the cards. This still leaves substantial marketings and a big flow of cash to farmers, but will put less pressure on prices later in the year. Some key crops such as corn and cotton still may show rises for the year, but they will not be large.

• **Hog Prices**—An 8% drop in the spring pig crop underlies a rise in prices. Last December, hogs were down to \$10 or \$11 per cwt. on the farm; now they are around \$16. Pork production will be smaller the rest of the year than during the same period in 1955.

Hogs—like the corn on which they fatten—are a politically potent crop in the Midwest. An improvement in hog prices can be counted on to smooth the ruffled feelings of many normally Republican farmers in that area.

II. Surplus Disposal

The Administration has succeeded in making important reductions in surpluses held by the Commodity Credit Corp. as part of the price support program. The outflow of cotton has been particularly heavy. In all of 1955, only 150,000 bales were sold by CCC from its stocks. So far this year 3,975,000 bales have been sold for export. The impetus came from Congress, which specifically ordered CCC to sell cotton for export at a price as low as 25½¢ per lb., if necessary, to move it. Cotton came into stocks under loans of 31¢ per lb., so the Treasury is taking a licking. But the device is getting cotton out of CCC hands and into world trade, which is what Cotton Belt congressmen were after. Wheat is going out of CCC hands at a slightly faster clip than last year; in the year ending May 31, 216-million bu. were sold, compared to 214-million bu. the year before.

• **Cost Rise**—The effect of higher prices on income is partly offset by a continued rise in production costs. Adjusted for seasonal differences, farm receipts so far this year are running at an annual rate \$800-million higher than the last six months of 1955. But production costs are running \$300-million higher, leaving farmers \$500-million better off.

III. Farm Income

For 1955 as a whole, farm income after payments of production costs was \$11.3-billion. So far this year, it has

run at an annual rate of \$11.6-billion. Agriculture Dept. experts disagree on whether this gain will be retained for 1956 as a whole.

Some expect the seasonal drop in prices from now to the end of the year to dump net income back to the 1955 level. But others are expecting the combination of substantial marketings and the new buoyancy of prices to main-

tain net income at its present level.

The net income figure of \$1.6-billion for 1956 so far is for agriculture as a whole. As usual in recent years, it will be divided among a fewer number of farms. In 1955, the average income per farm was \$2,268. The outlook is for a \$100 jump this year, a 4% gain in this key measurement of the farmer as a potential customer of business.

Moving-Up Day at Chrysler



E. C. Row

Chrysler Corp., its top executive ranks thinned by death and retirement, this week moved to strengthen its management corps and lay the groundwork for a line of succession.

Since K. T. Keller retired in April as chairman, Pres. L. L. Colbert has been lone pilot of the \$3.5-billion-a-year company. The chairman's post wasn't filled, and there has never been an executive vice-president. Thus, Chrysler found itself in a hot competitive race with perhaps the thinnest layer of top management of any company its size.

Death played a hand in this executive shortage:

- George Troost, financial vice-president, in January after a few days' illness.

- C. B. Thomas, president of Chrysler Export, in June, equally suddenly.

- Carl Snyder, vice-president for operations, at the end of June in the Grand Canyon plane crash (BW-Jul.7'56,p28).

- **Moving-Up Day**—Snyder had been one of few executives on the central staff with a corporation background broad enough to let him take over if something happened to Colbert. Shaken by his death, Colbert this week approved a plan that had been under dis-

cussion earlier. It creates three new jobs:

Administrative Vice-President, to be filled by E. C. Row (picture). Row has been president of Chrysler of Canada—which has been relatively more successful in its market than the parent company has been in the U.S.—and was recently named president of Chrysler Export to succeed Thomas.

Group Vice-President-Automotive, to be filled by William C. Newberg, 45, who succeeded Colbert five years ago as president of Dodge.

Group Vice-President-Basic Manufacturing, to be filled by R. S. Bright, 44, who has been in charge of engine and transmission manufacture.

Succeeding Row as head of the export company is Nicholas Kelley, Jr., 46-year-old son of Walter P. Chrysler's legal adviser; he has been secretary of Chrysler Corp., with little operational experience. Early this year he was put in charge of the executive decentralization plan, and he later took over dealer relations.

Row's post with Chrysler of Canada goes to Ron W. Todgham, 46, who has been executive vice-president there. New head of Dodge is M. C. Patterson, who moves up from vice-president for manufacturing in the division.

• **Buying Time**—A Chrysler insider agrees that the realignment is a case of "buying time to bring up our young people." Row, who is now the heir apparent, will reach the retirement age of 65 in another five years. He could obviously serve as Colbert's interim successor if need be.

Meanwhile, men like Kelley and Newberg will be gaining company-wide experience. Newberg is an engineer and has had wide experience in manufacturing, sales, and administration—at divisional levels. Now he becomes responsible for all the auto divisions—Plymouth, Dodge, De Soto, and Chrysler—as well as the Mo-Par parts and accessories division.

Among the younger men being moved up is Charles B. Gorey, Jr., who at 36 becomes director of manufacturing staff, a new post that covers some of the functions of Snyder. Gorey was Snyder's special assistant.



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In Business

Britain Gets Edge Over U. S.

In Atom Power Race in Japan

Unless the U. S. pulls up its sales socks, Japan will turn to Britain for most of its atomic help, according to Matsukaro Shoriki, Japanese Minister of State for nuclear affairs.

Shoriki says Japan desperately needs electricity from atomic power, and is promised it within five years by Britain—clipping five years off the most optimistic previous estimates. He gave two reasons for turning to the British:

- They offer to sell—immediately—a reactor that can produce power in commercially useful quantities. The Japanese are expected to order a 150,000-kw. reactor costing \$41.7-million, for delivery in four years or less. The U. S. has been talking in terms of much smaller reactors.
- Unlike the U. S., they do not demand that technical information about atomic equipment be kept from the public. This has political implications in Japan, where the Socialist opposition is clamoring for publication of atomic data.

AT&T Does It Again—Now It's

The Biggest Stock Offering Ever

The largest direct offering of new stock ever made by a U. S. corporation—\$575-million of it—hove up over the financial horizon this week. American Telephone & Telegraph Co. directors have approved the sale of 5,750,000 shares at \$100 each to stockholders. At midweek, AT&T was selling around \$180 a share.

Mother Bell's stockholders have been summoned to a special meeting Sept. 7 to pass on a proposal to increase AT&T authorized stock to 100-million shares from 60-million. If they vote "yes," rights to buy one share for each 10 held will be mailed out to them in October.

Magnesium Becomes a Twosome

As Dow Gets First Competitor

Dow Chemical Co. is going to have company in its lonely production of metallic magnesium. Brooks & Perkins, Inc. and Dominion Magnesium, Ltd., have ganged up to form the Alabama Metallurgical Corp., which will build a \$74-million, 10,000-ton plant near Selma, Ala.

Dow, right now the only commercial producer, makes magnesium from sea water at its 70,000-ton plant in Texas. AMC will use a slightly more expensive process to make the magnesium from dolomite; but the dolomite product is purer, and this could give it a price edge in such uses as the reduction of uranium, titanium, and zirconium. About half the production at Selma will go

into metallurgical processing, the rest into structurals.

Just a few weeks ago, the Magnesium Assn. predicted that present consumption rates would bring the metal into short supply within 18 months.

Harvey Machine Co.'s Aluminum Div. has finally cleared away all the financial underbrush that had obstructed its building of a 54,000-ton aluminum plant at The Dalles, Ore. (BW—Jun. 16 '56, p94). Harvey secured the \$44-million it needed in 10-year loans from three banks, and will start construction Aug. 1 Reynolds Metals Co., one of the aluminum Big Three, plans a \$20-million addition to its Lister Hill (Ala.) plant And other expansions: A \$60-million newsprint mill will be built in Ontario by Anglo-Newfoundland Development Co. A two-year expansion program will cost Nekoosa-Edwards Paper Co. about \$13.5-million Hercules Powder Co. and Imperial Chemical Industries Ltd., plan an \$11-million methyl methacrylate plant at Louisiana, Mo.

Capital Airlines May Turn to Comets

To Be First in U. S. Air with Jets

Capital Airlines, which beat other U. S. carriers to turboprop planes by buying British-made Vickers Viscounts, may be scoring again with jets.

London sources say Capital will buy Comet IV jets for 1958 delivery, thus gaining a year's lead over competition.

Other U. S. airlines are waiting for larger, faster American jets in 1959. The de Havilland Comet cruises at 500 mph. and seats 60 first-class passengers; American jets will cruise at 550-600 mph. and carry 80-132 first-class.

Capital is said to be paying \$60-million for 15 Comets, plus spares. An official of the airline would say only that "Capital has made no decision and is continuing to consider all equipment." J. H. Carmichael, Capital president, was unavailable—he's in London.

Business Briefs

The Detroit Tigers, sometimes called baseball's best franchise, were sold this week for \$5.5-million to a syndicate that included two Michigan radio men and singer Bing Crosby (BW—Apr. 14 '56, p163). Everybody seemed to be happy at the sale by the estate of Walter O. Briggs—except baseball's flamboyant Bill Veeck, who claimed that he had been flimflammed after making the high cash bid.

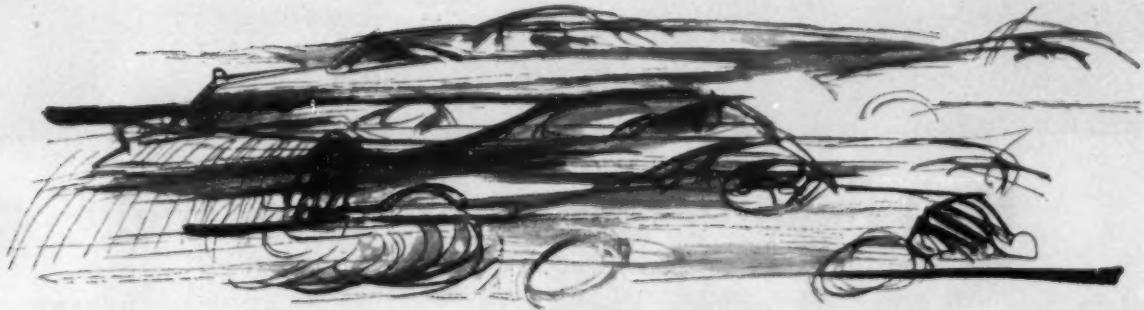
The Budd Co. took the covering off its low-slung, lightweight passenger car, Pioneer III, this week. At 595 lb. per seat it's the lightest of the lightweights, and at \$1,080 per seat it's close to being the cheapest. Pioneer III is standard length, has four-wheel trucks, and can be used with standard equipment.

Slaphappy "fair trade" took another jab on the chin this week when Federal Judge Mac Swinford in Kentucky ruled that retail price maintenance could not bind non-signers of price agreements. The ruling came in a suit by Sunbeam Corp. against two hardware companies in Glasgow, Ky.

The law of the asphalt jungle

Fifty million automobiles stampeding to shopping centers and show rooms, to discount houses and drive-in marts. Price cutting and profit-shearing. To stay in business with such brutal competition for your product, you've got to be sharp to cost it, produce it and price it for this bargain-happy "supermarket." Survival of the fittest is the law of the asphalt jungle. And the fittest is determined by the fewest wasted man-hours per part or product.

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WASHINGTON OUTLOOK

WASHINGTON
BUREAU
JULY 21, 1956



A BUSINESS WEEK

New military policy is being made that will reduce armed manpower. The big factor to keep in mind, though, is that the ideas being discussed in the Pentagon are designed to use money now spent for soldiers to buy ultra-modern weapons that are more expensive.

Buying of atom-era weapons will continue big, and perhaps be increased. That is the sense you can make of the disclosure that Adm. Arthur Radford, chairman of the Joint Chiefs of Staff, is recommending an 800,000 reduction in the size of the Army by 1960.

The present level of military spending will go on—or even go higher. The budget for the fiscal year that began July 1 earmarks more than \$35-billion for the military. In 1958 fiscal year that figure will jump \$1-billion. And only if a reduction in manpower is ordered—on this top Cabinet officials back up Radford—can the cost of defense be kept within the \$36-billion range.

The exodus from Europe won't be a parade (page 133). Overseas bases now manned and being built will be operative for a long time to come. And new military construction for bases at home, contained in the legislation that Pres. Eisenhower vetoed this week, will be reapproved and built. Eisenhower objected only to a Congressional fiat that the committees of the House and Senate would have to O.K. some of the construction.

The Air Force gets the money advantage under the new look policy. Gen. Nathan Twining, Air Chief of Staff, will spend the extra money that Congress gave him; he'll use it for jet tankers to refuel B-52s and B-47s and for some of the new supersonic fighter models. And the shrinking of the Army ground forces will give the Air Force even more money in years to come.

—•—

Renewal of tax aid to spur steel plant expansion is in the offing. The Office of Defense Mobilization is being pressured to reopen goals for special steels, particularly structurals and heavy tubing. Such a move would make such new facilities eligible for five-year tax amortization.

Only heavy plate and heavy castings now have expansion goals. But a developing shortage of structurals intensified by the steel strike has prompted reconsideration. Just before the strike, ODM Chief Arthur S. Flemming had announced that discussion of new steel expansion targets would not be renewed for at least six months.

Jones & Laughlin's proposed Texas plant (BW—Jul. 7 '56, p34) also is a factor in the ODM reappraisal. The company says it will build a plant for heavy steel tubing if the government will come through with fast tax write-offs. ODM can give J&L a certificate of necessity under a defense-needs provision of the fast amortization program without setting a larger goal for tubular goods, but had declined even to consider that until now.

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The public vs. private power dispute is getting rougher. Private utilities are coming under increasing attack in the closing days of Congress. A House Public Works Subcommittee, headed by Rep. Earl Chudoff (D-Pa.) subpoenaed officials of five Rocky Mountain area companies to answer his

WASHINGTON OUTLOOK (Continued)

WASHINGTON
BUREAU
JULY 21, 1956

criticism that they combined to influence Interior Dept. policies. There will be more hearings as election time nears.

—•—

Odds are that Eisenhower will sign the new Social Security bill. The Administration is opposed to the two major provisions put in the legislation by Democrats: Reducing the retirement age of women to 62, and paying benefits to permanently disabled workers at age 50. But it is so late in the session that Congress wouldn't pass a new measure if Eisenhower vetoed. The House might override a veto; but it is doubtful the Senate would.

Payroll taxes will go up in January if the bill becomes law. Employers and employees will pay $\frac{1}{4}\%$ more— $2\frac{1}{2}\%$ each. Self-employed will pay $\frac{3}{4}\%$ more, up to $3\frac{3}{4}\%$. The legislation also brings into the old age and survivors insurance system thousands of self-employed not now covered.

—•—

Renewed activity in Congress on minimum wages doesn't mean much. Finally, House Labor Committee Chmn. Graham Barden, who opposes extension of coverage, has acquiesced to demands of supporters for hearings, but it is now too late for either house to vote. The Senate committee will hold hearings, too. Big issue: covering retail chain store employees under the \$1-an-hour minimum wage.

—•—

The Louisiana off-shore oil dispute is far from being settled. The Interior Dept. this week made another offer to the state for settlement, but hope for early decision is dim. Louisiana officials oppose two basic points in the Interior offer: (1) impounding in the federal Treasury revenues from production in the disputed area until final settlement, and (2) renewal of federal leasing for drilling prior to final court decision.

The fight is over Louisiana's off-shore boundary in the Gulf of Mexico. The federal government contends it is only three miles; the state of Louisiana claims three leagues (10.5 miles). The disputed area is considered to be rich in oil potential. The controversy has forced shutdown of new drilling.

—•—

Ivar Peterson probably won't be reappointed to the National Labor Relations Board when his term expires next month. However, the Administration is expected to withhold naming a replacement until after election. The reasoning: Democrats would hop on a new nominee as a way to make decisions of the NLRB a political issue this fall. Peterson is a former aide of Sen. Wayne Morse, and a pro-union minority member on the board.

—•—

The role of the Joint Committee on Internal Revenue Taxation will be narrowed if the Democrats keep control of Congress next year. The committee and its professional staff, headed by Colin Stam, for decades has worked for both Republicans and Democrats, whichever party is in power.

But Democrats feel Stam is leaning pro-Republican. The major complaint is Stam's defense of the 1954 tax law, which Democratic members would like to rewrite to take back tax provisions they believe are too pro-business. This discontent is a major reason for establishment of the new Ways & Means Subcommittee announced last week (page 31). Democrats will throw the heavier work on tax legislation to the subcommittee's staff instead of to Stam if the party holds Congress.



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Politicos Woo the Union Vote

● From now until election day, the rank-and-file unionist will be as sought after as the season's most popular deb; both parties feel laborites are open to persuasion.

● The Republicans will court him with hopes of long-range benefits—as well as current gains.

● The Democrats will play up their party's "tested" reputation as a benefactor of labor.

In the weeks ahead to election day, the rank-and-file unionist is going to get a political wooing the likes of which he has never seen before.

Both political parties are planning campaigns to win the votes of union workers and their families. Both sides feel that a big majority of laborites are still open to political persuasion.

This is a change from the Roosevelt-Truman days when union members were generally conceded to the Democrats. Dwight D. Eisenhower's popularity among unionists in grassroots areas weakened the Democrats' tight hold on labor support in 1952. General prosperity under the Republicans since then further undercut Democratic backing among workers. ●

Now, Republican advisers are convinced that an open and lively contest for labor votes may pay dividends to the GOP. Democratic—and labor-strategists recognize that they face a fight to hold their own against Republican inroads into the labor vote.

• Still Strong—Eisenhower's personal popularity among unionists apparently hasn't waned despite concern over his health and reservations about his endorsement of labor-opposed Richard T. Nixon as running mate. At the same time, dissatisfaction with the Democrats has been growing in labor ranks—particularly among former CIO union leaders. One of their most outspoken, Emil Rieve of the Textile Workers Union of America, recently criticized the Democratic program as "only a little better than the Republicans' program." Others, including Walter P. Reuther, are clearly unhappy over what they consider to be Democratic indecision over a firm civil rights stand; they say flatly they have "little use for middle-of-the-roaders." The lack of solidarity behind the Democrats is further increased by the fact that erstwhile AFL and CIO groups do not see eye-to-eye on many political issues and personalities.

To the Republicans, this all points up the party's biggest opportunity to woo labor support since the advent of the New Deal.

• **Tactics**—In the campaigning ahead, far less stress will be on Eisenhower himself than on the basic policies of the Republican and Democratic parties:

• The Republicans, riding high on Eisenhower popularity but wary of the national concern over his health, will try to sell the party itself as a friend of the working man—not only as additional election insurance but also with hopes of long-range benefits from the President's appeal to the workers.

• The Democrats, aided by labor strategists, will avoid direct attacks on Eisenhower—but not on Nixon—while playing up the party's "tested" reputation as a benefactor of labor.

• **Reluctant Choice**—Although labor issues won't be neglected in the 1956 campaigning, both parties will probably concentrate more on social issues—taxes, housing, and the like—in their appeals to union rank-and-filers. For the Democrats, it's a reluctant choice. Many labor questions, primary campaign material in the past, will be passed over lightly because of the adroit way Labor Secy. James P. Mitchell has been using them in furthering the GOP cause.

The Republican Secretary of Labor has been a frequent speaker at labor conventions and other union gatherings, state and national. He has made a good impression, both in expressing concern for union labor's problems and in his defense of the Administration's labor policies and accomplishments.

His effectiveness, conceded by union officials, hasn't been overlooked by Republican campaign planners. Just recently, Mitchell met with 40 GOP congressmen from marginal districts to brief them on tactics that could be helpful in winning union votes.

• **GOP Setup**—Meanwhile, the Republican National Committee has its own new labor setup—called the rank-and-

file program—to mobilize unionists to work for the Eisenhower Administration cause. Headed by Roy James, former Senate Labor Committee staffman, this division is charged with rounding up support among union members in the eight largest industrial states.

With two union fieldmen, steel-worker Tom Collesimo and Buffalo AFL member Bob Ghormley, working out of national headquarters, the strategy is to develop labor advisory committees made up of union representatives to work with all state and county Republican groups.

"We don't expect to overturn the labor vote overnight," says a GOP strategist. "This is a chipping away process. It's a golden opportunity."

The GOP campaign is planned to reach the worker at the grassroots level. While avoiding any verbal assaults on unions and their leaders it will play up social gains made under the Republicans for the rank-and-file union member and his family—ranging from development of the polio vaccine to social security.

This new program, says a Republican spokesman, is the party's "answer to COPE," the AFL-CIO Committee on Political Education, which also aims its efforts at the individual voters.

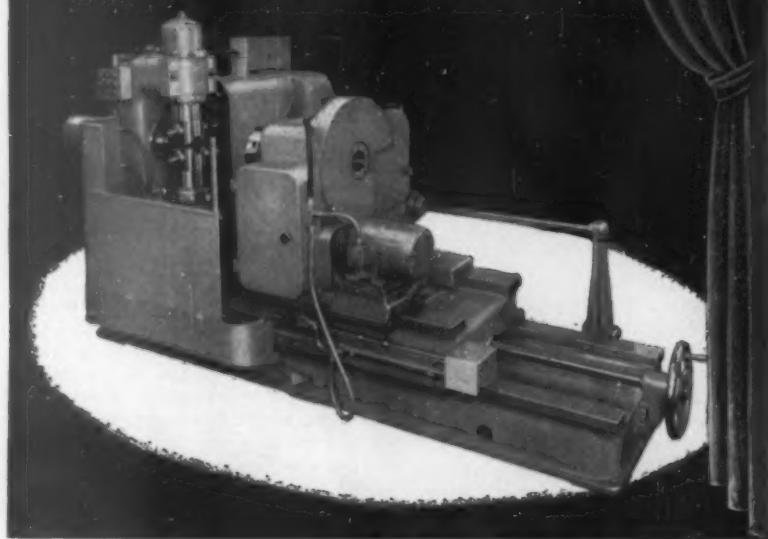
• **Counter Operations**—Whatever the effectiveness of the GOP campaign, its concentration on the individual union member is causing a step-up of operations by labor's Democratic-minded political leaders. Particularly in view of Labor Secy. Mitchell's success, up to now, in minimizing attacks on the Eisenhower Administration's labor program, GOP's aggressiveness may force a Democratic Presidential endorsement from AFL-CIO leaders to offset GOP gains among union members.

One immediate result has been the down-playing of strictly labor issues in the election. In a report on Congressional voting records soon to be mailed by the AFL-CIO Committee on Political Education to the 15-million federation members, labor and economic issues make up less than half of the 19 subjects covered.

Another result of Mitchell's efforts has been to narrow the field for labor's political assault on the Republicans. As one AFL-CIO expert put it, "Anytime we hit the Eisenhower Administration as big business, we have to make an exception for Mitchell and the Labor Dept."

• **The Voting**—Within the space of a few weeks, several members of the

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AFL-CIO executive council—the union leadership body that will decide in August whether to endorse a Presidential candidate—had warm words of praise for the Labor Secretary. They pointedly noted that his department is effectively enforcing the labor laws against management violators.

One, Pres. David Dubinsky of the International Ladies' Garment Workers Union, admitted AFL-CIO was wrong in its protest against the appointment of Newell Brown to be the Labor Dept.'s wage-hour administrator. Dubinsky conceded that "he has turned out to be the right man in the right place in the present Administration."

Another, American Federation of Musicians Pres. James C. Petrillo, commented that while he has been a lifelong Democrat, he is convinced that "no labor leader in this country would do a better job for all the people than Jim Mitchell."

Despite these words, Dubinsky endorsed Adlai Stevenson as the Democratic Presidential nominee, and Petrillo associates say his vote will probably be for the Democratic candidate once again.

While personally friendly toward Mitchell, other top labor leaders—including AFL-CIO Pres. George Meany—decline to give him an equally favorable estimate. Meany has continually refused to permit any AFL-CIO official to fill the still-vacant post of Assistant Secretary of Labor under Mitchell. In essence, this means AFL-CIO won't give full recognition to a Republican-led Labor Dept.

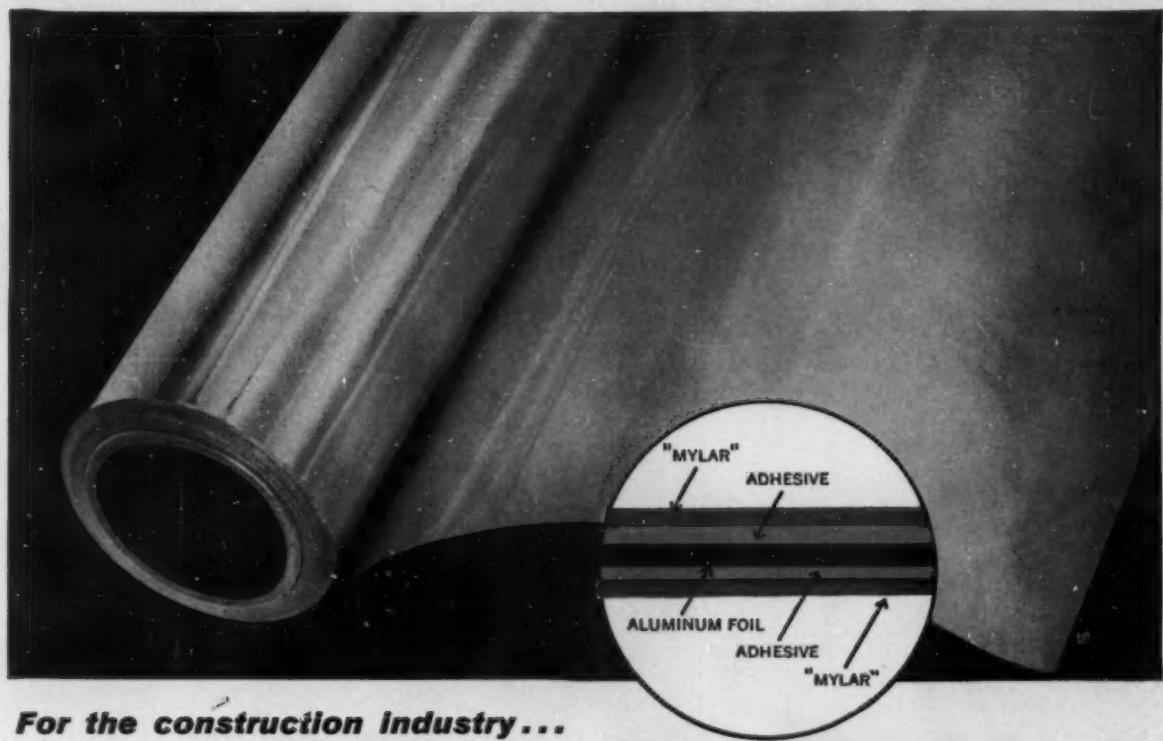
• **An Uphill Battle**—This traditional Democratic Party partisanship in labor has meant an uphill battle for Mitchell in his three years as department head. Nevertheless, he has scored some significant success.

His firm enforcement position is indicated by this year's first quarter record which discloses that investigations of wage-hour violations led to \$1.3-million payments in back wages to more than 16,000 workers. Wage-Hour Administrator Brown says flatly: "We won't cut corners for anyone."

This stand, in the face of some attempts from Republicans in Congress to ease up big back-pay orders for constituents, has resulted in the respect—if not the support—of union officials.

Mitchell has also thrown his weight behind some of labor's programs, although not so heavily as they would like.

If being an accepted friend of labor doesn't pay off with the vote of union officials, the question remains as to Mitchell's effect on the rank-and-file member. Certainly he will be a vigorous campaigner to demonstrate that the Republican Party merits the union worker's support. **END**



For the construction industry...

A NEW BARRIER ARMORED WITH "MYLAR" REDUCES MOISTURE PERMEABILITY TO ZERO!



Food Fair Company's new frozen-food warehouse in Linden, N. J., uses vapor barrier made of Du Pont "Mylar" and foil. The barrier is easily applied and sealed tightly with pressure-sensitive tape of the same material. Men shown walking on the vapor barrier illustrate the extra toughness and abrasion resistance of this lamination with "Mylar".

Thanks to a new material made of Du Pont "Mylar" polyester film and aluminum foil, industrial constructors have a completely new moisture-barrier material for more effective control of humidity. Already, this new material is being used in warehouses for frozen-food storage, special rooms for the operation of extra-sensitive electronic equipment and storage facilities for military equipment.

This new laminate with "Mylar" is strong yet light in weight — there's no need for extra support frequently used for heavier moisture barriers. Since this flexible material comes in roll form, it's much easier to install than rigid barriers. When slit into tape widths with a pressure-sensitive

adhesive, this same laminate provides an effective seal to join the sheet together. Most important, this laminate of "Mylar" and foil provides *zero permeability* to moisture vapor!

Here is another example of how Du Pont "Mylar", used alone or in combination with other materials, is improving old products and helping create new ones. For more information on properties, applications and types of "Mylar" available, send in the coupon below. Be sure to indicate specific application you have in mind.



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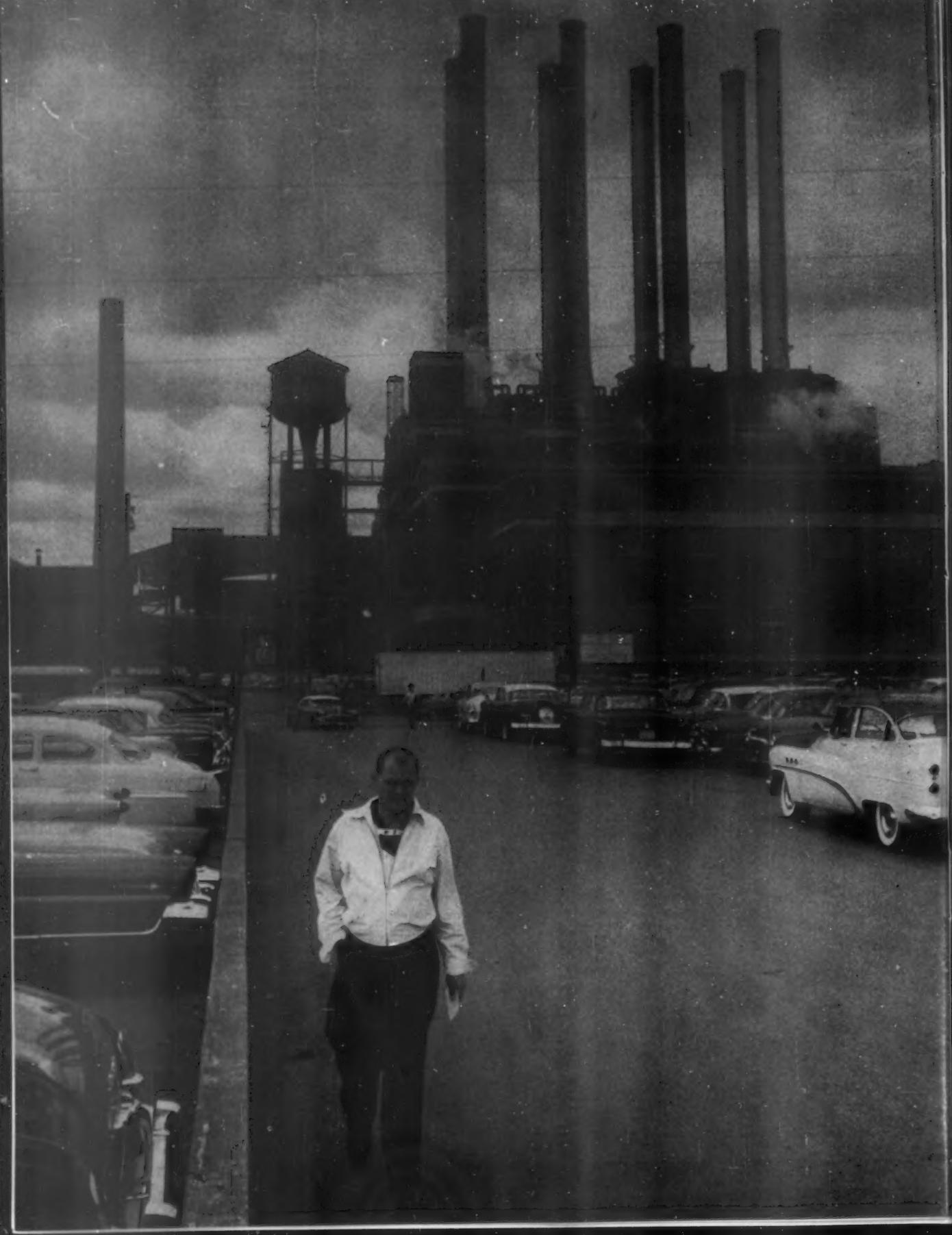
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SUB Meets Its First Test Well

Everyone understood how the cutbacks in auto production this spring tested the strength of the business boom. But they tested something else, too: the brand new supplementary unemployment benefit system that the auto companies developed as a counter to the guaranteed annual wage. Laid-off Art Chrjanowski, 30-year-old Ford employee (left), was one of thousands who, with their employers, put SUB into operation.



BY THIS WEEK the big three auto companies could take a breather on their supplemental benefit plans for laid-off employees. Since the program took effect June 1, the number of workers who applied has dwindled and no further large number of applicants can be expected until model changeover layoffs begin late next month. The benefit period of the early-June recipients has expired, and both management and union have a chance to look back to see how it has gone. Their conclusion: It's gone pretty well.

• **Minor Friction**—Indeed, the break-in period went remarkably smoothly for a plan as complicated as SUB (BW-Jun. 2 '56, p54). Denials of benefits, and subsequent appeals, mostly revolve around whether a man was laid off before May 1—a critical date, since the contract specified that only workers laid off after that date would be eligible.

This, of course, is a non-recurring type of argument.

Other minor friction occurred:

At Ford, a slight procedural change regarding when a man reports to the SUB office was found desirable.

At General Motors, there was a tiff with the union over eligibility of workers who receive veteran disability pensions. (GM first said they were not eligible, then changed the ruling.)

At Chrysler, the union and company squabbled over requirements that a laid-off worker report into the SUB office the week of July 2 even though he had no unemployment compensation check because his day at the UC office fell on July 4. When workers didn't report for that week they were denied SUBenefits and the union has appealed to the SUB board of administration.

• **Typical Case**—How the plan looked

to a beneficiary is summed up by Arthur P. Chrjanowski (pictures), who had worked at Ford continuously since 1947 before being laid off on May 4 from his job in the Dearborn engine plant.

Art's SUB check, \$10.72, his benefit period, a little more than 4 weeks, and his experience collecting the check, were about typical of thousands of other laid-off auto workers.

• **Procedure**—After his layoff in May, he applied and was approved for state unemployment compensation. So he had his "waiting week" and UC eligibility established—both required under the plan—when June 1 rolled around. Every Wednesday in June he would arrive at the state employment security commission office to pick up his check for \$37.

He had to hold that check for two days until Friday, when he would

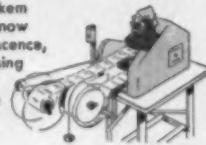
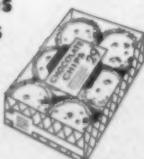
Getting the SUB Payments



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identifying electronic components

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Better marking — for all industry — has been Markem's business since 1911. For help with your needs, write Markem Machine Co., Keene 33, New Hampshire.



CHRJANOWSKI STARTS by filing application for state unemployment benefit.

(Story starts on page 46)

drive to Ford's SUB office at the River Rouge plant. There, he had to show his UC check to qualify for his SUBBenefit of \$10.72 for that week. The SUB check was mailed to him.

• **Rules Change**—It was the holding of the UC check for those two days that squeezed Art and other Ford workers. So the company changed the rules to allow Art, if he chose, to go directly from the UC office on Wednesday to the SUB office, show his check and then be free to cash it.

Art's weekly SUBBenefit of about \$10 made up about one-quarter of his lay-off income. Combined, UC and SUB gave him about \$205 a month. His monthly expenses totaled \$257. The gap was more than made up by his wife's weekly salary of \$65. She works regularly.

• **Applicants**—It was the small size of the benefit, auto company people feel that made the number of SUB applicants lower than expected. It is estimated that GM had about 32,000 laid off who had the credit units necessary to get a SUBBenefit. And it is

Machinery Started



STANDING IN LINE begins for Art as he waits to receive his unemployment compensation check.

INFORMATION CLERK at the state UC offices answers all of Art's questions, estimates his compensation amount.



IN LINE AGAIN—this time at the Ford SUB office, newly established at the River Rouge plant.

FORD CLERK examines Art's UC check, which is his warrant of eligibility for SUB payments.



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The Butler rigid frame. Each frame member is of tapered design for greatest strength per pound of steel. This provides greater capacity to withstand stresses from high winds, snow loads, cranes.

Butler die forming. Every Butler panel is die formed for added strength. Each coincides perfectly with its mate, without makeshift tin-smithing, providing the weather-tightness of a one-piece shell.

The list of Butler advantages . . . the remarkable things Butler does with metal . . . the reasons for Butler's moderate prices . . . comprise a 12-page catalog—or a 30-minute film. Your Butler Builder will be glad to show you both. Won't you call him? He's listed under "Buildings" in the yellow pages of your phone book.



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(Story starts on page 46)

figured that no more than half of this number applied.

- Duration—Auto people guess that the small size of the benefit dissuaded many laid-off workers because they want to save their credit units (a certain number of which must be sur-

rendered to get a weekly SUB check) for the model change-over layoffs. If an employee waited to use his SUB eligibility in the fall, both the size of the benefit and its duration might be greater.

All three companies report that the trust fund position (which governs the duration of benefits and to some ex-



SUB CHECK IS MAILED to Chojnowski's home. With it, father and 4-year-old George, do day's shopping. The amount of the check—\$10.72—doesn't quite cover their purchases. The groceries with a carton of Chesterfield "Regulars," come to \$13.25. But Art says SUB is worth all the trouble.



**Here's a
good way
to start a
good day!**



NUTRITION authorities say that both adults and children miss many healthful benefits if they fail to eat a good breakfast.

Without breakfast, mid-morning fatigue sometimes occurs . . . along with irritability and difficulty in concentrating on work or studies. So a good breakfast is the best way to begin the day.

What is a good breakfast? It should supply 25 to 33 percent of the vital nutrients needed for the day. It should include fruit in some form; bread made from whole-grain or enriched flour; cereal or eggs, meat or fish; and milk either to drink or use on cereal or in a cooked dish.

A breakfast planned around these foods, adding other things you like, provides the "pickup power" you need after having fasted some 12 hours from the meal the night before until breakfast the next day.

Moreover, every item on a wholesome breakfast menu supplies important nutrients. Citrus fruit or fruit juice helps fill your need for vitamin C. Whole-grain or enriched bread and cereals yield energy, B vitamins, iron and other minerals. Milk is important for both its calcium and its proteins, and eggs and meat for their high-grade proteins, vitamins and minerals.

A breakfast that gives you these food elements may help you escape mid-morning fatigue . . . and helps you to avoid overeating at lunch or dinner. This is why overweight people need well-balanced breakfasts.

If you or members of your family seldom feel hungry for breakfast, you might get into a good breakfast habit if you try some of the following suggestions:

1. Start the day at least 15 minutes earlier. This will allow more time for the family to eat unhurriedly without risking tardiness at school or lateness at the office.
2. Try to take a bit of light exercise before breakfast, preferably in the fresh air.
3. Vary breakfast menus as much as possible. New flavors, new ways of cooking and serving can make breakfast a looked-forward-to meal.

If the leisurely, well-balanced breakfast habit is followed, every member of your family may be helped to feel better, think more clearly and work more effectively.

Many recipes which you will find easy to follow . . . including nutritious dishes for breakfast, lunch and dinner . . . are given in Metropolitan's 56-page *Cook Book*. Just clip and mail the coupon below for your free copy.

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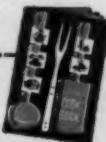
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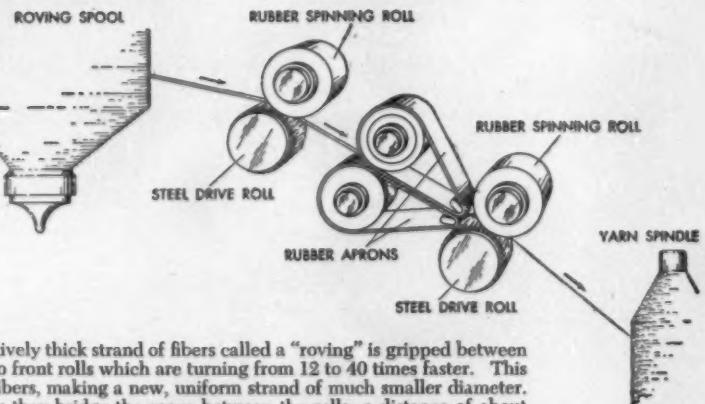
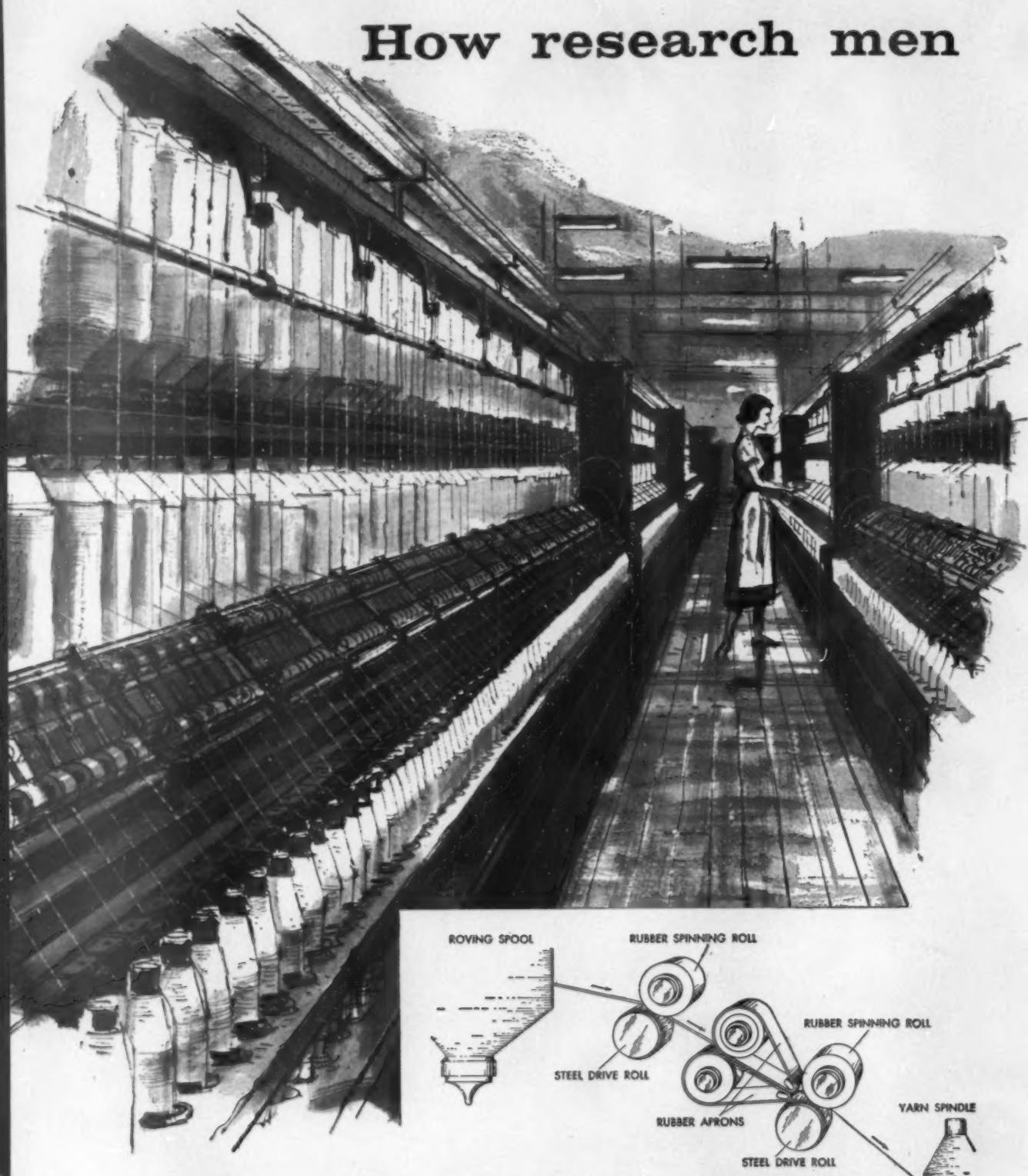
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How research men



In yarn-spinning, a loose, comparatively thick strand of fibers called a "roving" is gripped between revolving rear rolls and delivered to front rolls which are turning from 12 to 40 times faster. This difference in speed draws out the fibers, making a new, uniform strand of much smaller diameter. Rubber aprons control the fibers as they bridge the space between the rolls—a distance of about four inches. The thread continues on to a "traveler" (not shown) and spindle which turn at about 10,000 rpm, giving the yarn the twisting it needs to lock the fibers in place.

taught rubber to spin yarn

In about the time it takes to read this sentence, a set of rubber rolls and bands on a modern spinning frame can transform an inch of wispy cotton fibers into more than three feet of hard-to-break yarn.

These rubber rolls and bands—textile men call them “cots” and “aprons”—do this exacting job by gently drawing out cotton fibers that naturally vary in length. The long and short fibers are held in place until all can be twisted together permanently. These rolls and bands look ordinary enough, but they’ve got some highly developed spinning skills built into them.

The rolls, for example, had to “learn” to resist lap-ups. These occur when a yarn end breaks, sticks to a spinning roll, and wraps tightly around it—usually so tightly that it must be cut loose. This takes time, and there’s always danger that the roll will be cut, too.

For years, the cause of lap-ups was unknown. Then Armstrong research chemists found that moisture layers on the fibers and rolls contain electrical charges that attract fibers to the rolls. After further study, these chemists discovered a cure. They added a special electrolyte to the synthetic rubber used in making the rolls. Lap-ups ceased to be a problem!

Armstrong research men also had to teach spinning rolls to resist “eyebrowning.” An eyebrow is a clump of waste fibers that builds up on the front of the felt-covered clearer board which rests on the spinning rolls and wipes them clean. When “eyebrows” form, they’re apt to fall onto the yarn and break it. Or they may be spun into the yarn, making it uneven.

This time the answer was found by adding particles of cork or wood fiber to the synthetic rubber mix. These particles act like thousands of tiny fingers, grabbing the waste fibers and carrying them back under the clearer board pads where they can do no harm.

The rubber aprons that help control the yarn as it moves between the rolls also needed a few lessons. The outside surface must have enough friction so that the bottom apron will drive the top without slippage. Yet the inside surface must turn smoothly around a nose bar whose radius is $\frac{1}{16}$ " or less. The Armstrong solution: two different rubber compounds, one for each surface, vulcanized together with a nonstretch interliner between. This “sandwich” is given a special chemical bath which conditions the rubber surfaces so that their frictional properties are exactly right for top quality spinning.

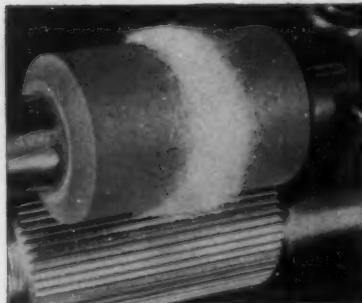
As a result of this research and development, yarn is being spun better and more economically than ever before. And there’s a better than even chance that the yarn for the clothes you wear was spun on cots and aprons “educated” by Armstrong.

Although originally compounded for use in textiles, Armstrong rubber products have found wide use in other fields. The rubber rolls are handling web and film materials for many industrial firms. And many drive and conveyor belt problems are being solved by seamless, nonstretch Armstrong Flat Belts which use much the same construction as that patented for Accotex® Aprons. For details, write to Armstrong Cork Company, Industrial Division, 8207 Indian Road, Lancaster, Pennsylvania.

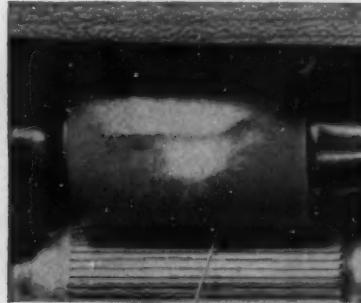
Armstrong Industrial Products

... USED WHEREVER PERFORMANCE COUNTS

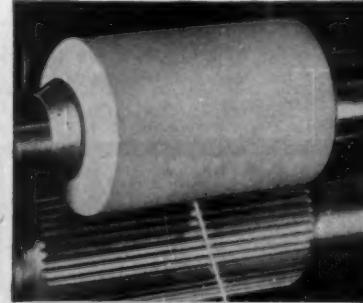
ADHESIVES
CORK COMPOSITION
CORK-AND-RUBBER
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FRiction MATERIALS



If yarn breaks after being drawn under a spinning roll, microscopically-thin water film holds the broken end to the roll—causing a lap-up. Tiny electrical charges in the water film actually set up an adhesive force, bonding the fiber to the roll.



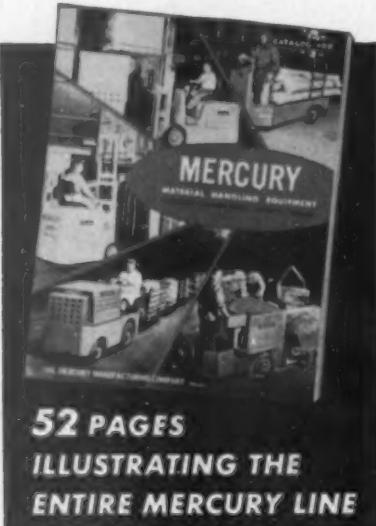
As yarn is spun, flat felt-covered clearer boards, placed on the spinning rolls, pick up waste fibers. But if the spinning surface of the roll is not rough enough to push waste back under the clearers, “eyebrows” may form—and drop into the yarn.



The lapping problem was solved by adding an electrolyte to the rubber which neutralizes the electrical charges in the water film. Eyebrowning was ended by mixing cork particles into the rubber. These carry waste fibers back under the clearers.

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(Story starts on page 46)

tent their size) is now close to the 31% mark at which fewer credit units have to be forfeited to get a weekly check.

It is the duration of the benefit period that is of chief concern to the workers. As major model changes will be made at all three auto companies this year, the change-over layoffs may be longer than they were, say, last year when body-shell changes were few.

How this works out in practice can be illustrated by Art Chranowski's case. When he was receiving SUBene-

fits, he gave up 2.5 credit units each week. He had a total of only 11.5 units at the time he was laid off. When the trust fund position is over 31%, with his nine years' seniority he would have to surrender only 2 credit units a week and would be able to get benefits for more than five weeks. And although a worker does not build up any additional credit units while laid off, he automatically benefits as the trust fund position increases. In other words, the credit units he had earned prior to layoff have increased value as far as the duration of benefits is concerned.

ART SPENT most of his layoff time working around the house. Now he's back at work.



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It's now 24 hours instead of 30 from Birmingham to New York and 26 instead of 32 hours from Birmingham to Philadelphia. Jack Cole Company's new fleet of 43 GMC 860 diesel tractors equipped with Fuller 10-speed Semi-Automatic R-96 ROADRANGER Transmissions cut 6 hours off each trip.

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sisted on the ROADRANGER Transmission for the new tractor to get the ability needed for faster trip time. The faster speed, dependability, driver control, and ease of shifting are the reasons for specifying Fuller 10-speed Semi-Automatic ROADRANGER Transmissions.

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tween ratios which let us keep our engines in the high horsepower range, have made the difference in our running time."

See your truck dealer for full details on the most efficient, easiest-shifting *driver controlled* transmission available today. Be sure to specify Fuller Semi-Automatic ROADRANGERS for your new trucks.



FULLER MANUFACTURING COMPANY
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At the McDonnell plant, St. Louis, light level in pre-flight area more than doubled as a result of group relamping.

McDonnell Aircraft saves over \$7,500 a year by Group Relamping with G-E Lamps

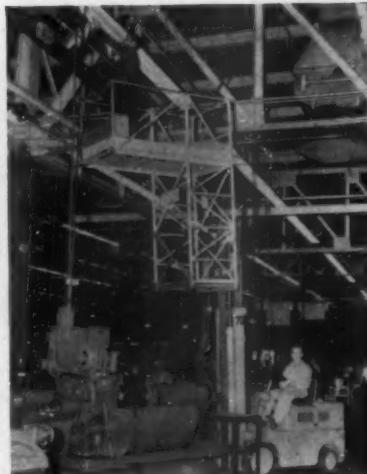
MAINTAINING 36,000 fluorescent lamps on an individual basis was a major item on the McDonnell Aircraft Corporation budget. High labor costs, inaccessible fixtures and the congestion brought on by expanded production compounded the problem and the expense.

WITH THE HELP of a General Electric Lamp specialist, McDonnell worked out a systematic Group Relamping Plan. Now they replace large groups of lamps periodically with new General Electric fluorescent lamps. Fixtures are cleaned when lamps are replaced. Lighting maintenance is scheduled for periods when production is low. And because the schedule is set up to allow only a maximum of 3.8% burnouts, the high cost of individual replacement is completely eliminated.

"WE ESTIMATE our total savings in lighting maintenance costs from

group relamping at \$7,500 per year," writes Leon P. Bowers, Utilities Supervisor at McDonnell. "In addition to money savings we're getting a needed, much higher level of light throughout our plant, and there's less interference with production due to lamp changes. Our labor costs would surely run at least 100% higher were we to replace lamps as they burn out and regularly wash fixtures in a separate operation."

IT'S THE UNIFORM PERFORMANCE of General Electric lamps that makes Group Relamping work here and in many other plants, offices and stores. Group Relamping can save you at least 50% of your lighting maintenance labor dollars. You can find out all you need to know by sending for the new booklet, "Group Relamping Pays Dividends." Write General Electric Large Lamp Dept. BW-7, Nela Park, Cleveland 12, Ohio.



Special equipment like this platform on a lift truck enables maintenance crew to change lamps quickly and easily.

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In Labor

Ohio O.K.'s New SUB Plan With Vested Rights for Workers

Last May, the Ohio Bureau of Unemployment Compensation ruled that Ohio workers "cannot receive state benefits and motor industry type supplemental private benefits at the same time." This ruling barred auto workers in Ohio from SUB compensation such as what is now being paid elsewhere (page 42).

Last week, however, the Bureau made a significant concession toward privately paid unemployment benefits—and possibly set a pattern for SUB plans now in the offing in the rubber industry. The agency approved integrated state and private benefits under individual income security plans such as those pioneered in the glass industry (BW—Sep. 17 '55, p166).

Specifically, the Ohio agency O.K.'d an SUB-type plan negotiated by the Eaton Mfg. Co. and the Mechanics Educational Society of America. Like the glass plans, the Eaton program provides for individual accounts in which employees have a nonforfeitable interest. Money paid by the employer into individual accounts is considered a part of wages; in the case of Eaton, at least, the employer pays a state UC tax on the 3½¢-an-hour contribution to each worker's account—just the same as on money paid out in regular wages.

If a worker is laid off or ill, he may withdraw money from his individual account. If he leaves the company, or in the event of his death, the employee or his estate gets whatever balance remains. There's a \$600 maximum on accounts. When that level is reached and for as long as it is maintained, employer payments are diverted to the worker's vacation fund—and paid out to him annually.

In auto-type SUB plans, employers' contributions are considered a welfare plan cost, not wages. Workers have no vested interest in employer contributions; conceivably, they may never receive any benefits from the cents-per-hour paid by their employers for hours worked.

Largely because of this difference, Eaton and MESA—and glass companies and their unions—contend their plans are "fairer" than UAW's.

• • •

6.2¢ Rise, Pioneer SUB Plan

Averts Goodrich Strike at Last Hour

The United Rubber Workers and B. F. Goodrich Co. reached a last-minute settlement this week providing a 6.2¢ hourly wage boost and the tire industry's first supplementary unemployment benefits plan costing 3¢ per hour worked. The agreement came just an hour before a strike deadline.

The settlement was the first reached in the rubber industry this year. In past years, the first pact with one of the Big Four has set a pattern for the others. Good-

year, Firestone, and U. S. Rubber agreements expire this weekend, a week later than Goodrich's.

The Goodrich contract was open only on wages this year. Until a few hours before the deadline, the company had offered 5¢ raises for six of nine plants, no increase at all for workers in "loss or marginal profit" plants in Cadillac, Mich., Clarksville, Tenn., and River-side, N. J. URW locals voted to strike.

In the showdown hours, Goodrich offered an additional 1.2¢ and extended the raise offer to all plants. At the same time, the company made a surprise SUB offer, leaving open to further negotiations details of the kind of plan to be put into effect. The pay offer accepted by the union—but subject to ratification by locals—is close to the 1956 gain in the auto industry, which gave an automatic 6¢ "productivity" raise last month.

• • •

Railroads Ask Pay and Other Cuts

In Countering Union Demand for Rise

Railroads last week countered union demands for raises by proposing a wage cut and other labor cost concessions.

The 1956 round of negotiations between some 300 roads and operating and nonoperating unions isn't yet under way on a national basis. However, unions have given individual carriers their demands (BW—Jun. 30 '56, p153) and the roads have counter-proposed that:

- Nonoperating unionists, who are asking for a 25¢ pay hike, take a 6½¢ cut instead.
- Operating unionists, who want increases of \$3 a day and up, man trains on longer runs than now for the same pay; train crewmen are paid on a basis of time worked and mileage covered.

The carriers did not cite their reasons for cost-cutting proposals—presumably leaving that for the start of national contract talks in the next few weeks. But unions didn't wait to criticize the carriers' pay-cut request "when employees in other industries are getting wage increases, the cost of living is mounting, and railroad profits are going up."

• • •

Independent Steel Workers Seek

Still More Weekend Premium Pay

A key issue in the continuing national steel strike is a United Steelworkers demand for premium pay for weekend work in continuous-process basic steel plants. The industry has offered a deferred compromise; USW wants bigger and faster benefits.

Saturday and Sunday are regular work days in practically all steel mills. However, the International Harvester Co.'s Wisconsin Steel Works in Chicago has paid time-and-a-half for Sunday work since 1919.

The leadership of the independent Progressive Steel Workers says it's "a wonderful situation" but the union wants still more—double-time for Sundays and time-and-a-half for Saturdays. The company and union are in contract negotiations, not connected with steel industry-USW bargaining.

MARKETING

ORIGINAL

Classroom chairs: Kuehne's lacks the hole in the back of Brunswick's (original).



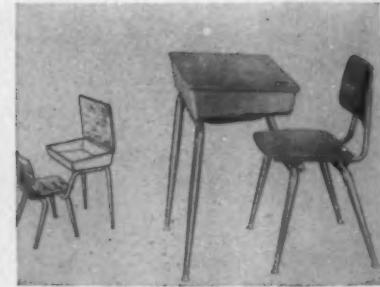
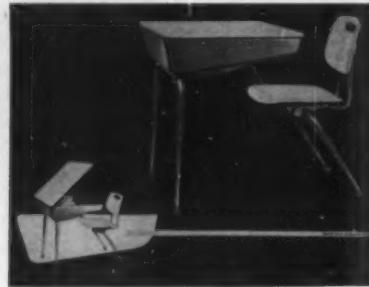
COPY?



Teachers' desks: Hardware and metal braces are different; woodwork is similar.



Book box set: No pencil tray in Kuehne desk (see insets) but chair leg added.



Court Says It's Design Piracy

Ask any industrial designer or one of his clients what he thinks of design patents as a means of protecting new products from being imitated—the answer will probably be that such patents are hardly worth bothering with. That's because the courts have generally held that when a design is changed in one or two details it becomes a new design.

However, the protection of the Design Patent Statute appears to have gained sudden meaning as a result of a recent federal district court decision in Chicago. The case involved the design of school furniture (pictures), made by Brunswick-Balke-Collender Co. of Chicago and Kuehne Mfg. Co. of Mattoon, Ill.

There still is conflict over the significance of the decision, but most designers are jubilant. Says Harry Glass, chairman of the Committee on Design Protection of the Industrial Designers Institute: "This is the first major judgment, the first major case, and the first major amount of money. It will make people think twice. It will cause creative manufacturers to seek protection in more cases, and it will cause others to take the trouble of getting patents."

• **Word of Law**—Design patents are supposed to protect the design of an article in the same way that mechanical patents protect its mechanical features. But the law is worded to give this protection specifically to designs that in-

ventively improve the esthetic value of a commercial item.

Under strict interpretation by the courts, it's hard to prove that a design does this. So most designers and manufacturers have fallen back on other means, such as copyrights, trademarks, or the unfair trade practices law, or else they have accepted design piracy as something they must live with.

• **School Desk Case**—The Brunswick vs. Kuehne case was prefaced by the former's decision four years ago to bring out a line of modern school furniture as its first major diversification away from bowling, billiards, and gym equipment.

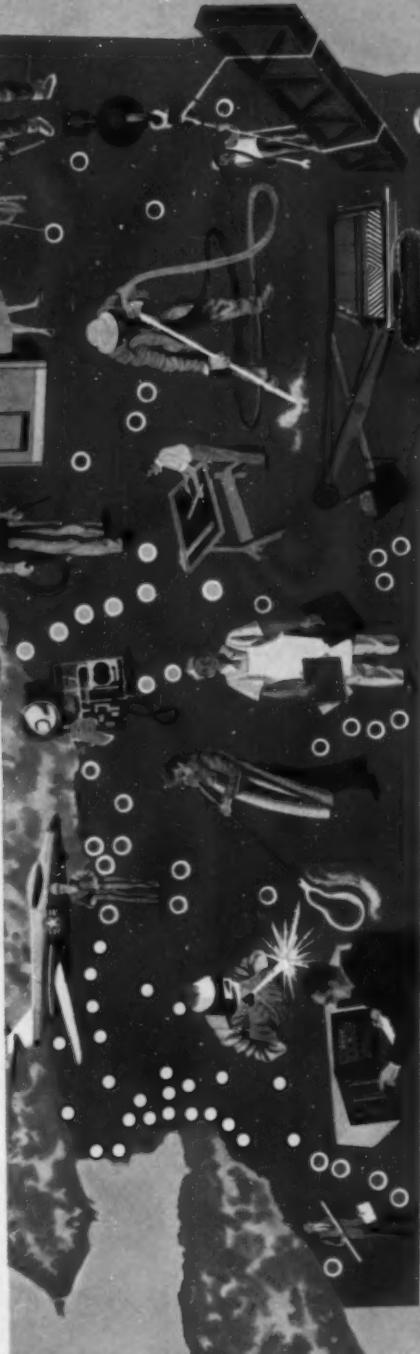
Brunswick spent more than \$300,000

MARINE MIDLAND BANKS KNOW NEW YORK First in Skilled Labor

New York State has been long unexcelled in the ingenuity and resourcefulness of its highly skilled workers. In fact, if you know that an object can be made by human hands, you can be sure that some astute New York Stater can fashion it faster, cheaper and better. Supporting this know-how is a substantial supply of unskilled labor. These are good

reasons why you find here remarkably diversified industries... an attractive advantage for new industries which seek to sub-contract components.

Marine Midland Banks (listed below) are closely acquainted with the skills of their regions' residents. Write to the bank in the area that interests you—their local knowledge can be of effective help.



13 MARINE MIDLAND BANKS serve these 75 Communities through 150 offices

THE MARINE TRUST COMPANY OF NEW YORK	THE NORTHERN NEW YORK TRUST COMPANY
Buffalo	Watertown
Erie	Anwerp
Albion	Carthage
Attica	Cazenovia
Barker	Canastota
Batavia	Carrollton
Deshow	Corinth
East Aurora	Wells
Eden	South Dayton
Middleport	Watfield
THE MARINE MIDLAND TRUST COMPANY OF NEW YORK	THE MANUFACTURERS NATIONAL BANK OF TROY
New York City	Troy
Albion	Amsterdam
Attica	Troy
Barker	Johnstown
Batavia	Jamesport
Deshow	Johnson City
East Aurora	Wells Glen
Eden	Westfield
THE MARINE MIDLAND TRUST COMPANY OF CENTRAL NEW YORK	CHAUTAUQUA NATIONAL BANK OF JAMESTOWN
Syracuse	Cherry Creek
Manlius	Jamesport
Tully	Talbot
Owego	South Dayton
THE FIRST NATIONAL BANK OF HERKIMER	AUBURN TRUST COMPANY
Herkimer	Auburn
MEMBERS FEDERAL DEPOSIT INSURANCE CORPORATION	NYACK BANK AND TRUST COMPANY
	Nyack
OF KOME BANK	THE FARMERS NATIONAL BANK AND TRUST COMPANY
	Utica



New for brew... new for you... it's another Canco "first"

IT'S A NEW-STYLE full quart can . . . the first really new development in beer cans in years. Invented by American Can Company to provide economy and a new convenience in one neat modern package.

You'll be seeing lots of these new cans, for their popularity is assured. The new-style crown top can stacks easily. No opener needed—the cap prys off with the use of any other can. The quarts require less space. They're lighter and easier to carry; ideal for gatherings and they

chill more quickly, too.

Trade-marked "Keglined," this new container has all the quality features that have made Canco's original beer can the most popular choice among brewers. They know that in cans trade-marked "Keglined," beer tastes the way it should.

The new quart beer can is another Canco "first," one of many. If you have a packaging problem, why not talk to Canco. The *next* Canco "first" could be for you.



"Can do!"... that's the spirit of American Can Company

NEW YORK • CHICAGO • SAN FRANCISCO

in market research, fees to designer Dave Chapman and Design Research, Inc., production, and merchandising. Chapman and Brunswick designer Richard G. Reineman developed a group of desks, chairs, work tables, and cabinets, which were introduced in February, 1953.

Late in 1954, Brunswick was falling behind in deliveries, and it looked for subcontractors. It took blueprints to Kuehne, a well-established maker of metal furniture, and asked for a bid. Kuehne was already doing other work for Brunswick. Its bid, which called for a \$200,000 advance for tooling, was rejected by Brunswick.

Three months later, however, Kuehne distributed a catalog of school furniture. Brunswick officials took one look at it and brought suit for infringement of its design patent.

A few weeks ago, Judge John P. Barnes in the federal district court in Chicago found in favor of Brunswick. He ordered Kuehne to pay Brunswick \$180,375 in damages and enjoined Kuehne from making any more furniture of the designs in question. However, he permitted the company to ship \$411,000 worth of furniture that was already on order.

Kuehne had 30 days in which to appeal, but Fred Kuehne, III, a vice-president, said last week that the company would not go to the expense of appealing.

• **What It Means**—Designers are chiefly encouraged by the language Judge Barnes used in upholding Brunswick's patent. It seems to have laid down a broadened rule for judging a design infringement, getting away from the traditional judicial attention to details of design.

For example, Judge Barnes said: "On the question of infringement, I don't think you can take up a chair and say, 'This chair has a hole in the back and this one does not, this chair leg is tapered from the bottom to the top and this one is only tapered for 12 inches' . . . I think you have got to judge the ensemble."

Designers feel this may be an indication that the courts are beginning to regard design as an important element of the product rather than as mere embellishment.

"The judge in this case gave weight to the over-all appearance of the furniture," says George Nelson, designer for Herman Miller Furniture Co. "He realized that the style was part of the expression of a function, not just a superficial adjunct."

Nelson says this view is strengthened by the outcome in a similar case last year, when a clock of his design had been copied by another manufacturer. His company sued and won the case. Nelson feels that such decisions will in-



Let's talk about termites!

It's not a pleasant subject. But it's a subject you shouldn't dodge if you're about to build an industrial structure or a new home. For every year termites ruin millions of dollars' worth of wood.

Termites feast on cellulose, the vital part of wood. They usually attack buildings through the foundations. They are relentless in their search for food. Like animated drills, termites will even bore through plaster and mortar to get to the food they want.

Discouraged? Don't be! For chemistry provides wood with effective termite protection. This treated wood is called Wolmanized® lumber. Deep, thorough pressure-treatment with a chemical preservative protects this wood. If termites try to eat Wolmanized lumber, they sign their own death warrants.

Wolmanized lumber is protected against rot as well as termites. And this all adds up to longer service life. As for extra cost, it's a token amount when you consider the cost of one average repair job due to rot or termite damage.

Show this advertisement to your architect and builder. They will help you use Wolmanized lumber to the fullest advantage. They know where termites strike; they know which parts are most vulnerable to rot. Meanwhile, send for free booklet. It tells why Wolmanized lumber is so widely used. Koppers Company, Inc., Wolman Preservative Department, Pittsburgh 19, Pennsylvania.

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Koppers Company, Inc., Wolman Preservative Dept.
1301-M Koppers Building, Pittsburgh 19, Pennsylvania

Send me a free copy of your illustrated booklet on Wolmanized lumber.

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Company _____

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APPLIANCE INSULATION • Weber's INDUSTRIAL

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insulate with

48

FORTY-EIGHT INSULATIONS, INC.
AURORA, ILLINOIS

INSULATION • Copr-fibre BUILDING INSULATION

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THIS large drug firm utilizes a variety of Standard power and gravity conveyors to keep orders moving to destination . . . without confusion . . . with minimum handling. It's another example of how Standard can job-tailor an efficient system to your specific needs . . . and do it with a combination of stock components, keeping costs to a minimum.

For experienced conveyor engineering, it will pay you to contact STANDARD CONVEYOR COMPANY. General Office: North St. Paul 9, Minn. Sales and Service in Principal Cities.

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spire more confidence in design patents.

Other designers comment that easier access to law will serve as a warning against copying, make it easier for small companies to fight in court for their designs.

• **Furniture Makers**—While designers hail the result of the Brunswick suit, furniture people tend to minimize it. They point out that the decision was made by a lower court and might be reversed in subsequent cases. Moreover, they say the losing company's access to blueprints was a factor in the case.

"It just means that you can't pirate designs if you have blueprints," says one furniture trade spokesman. "In how many cases out of a thousand do you have blueprints?"

The Furniture Manufacturers Assn. of Grand Rapids insists that the case sets no precedent for greater design patent protection, that it amounted to a trial of unfair trade practices. One furniture maker declares that design piracy is too deeply ingrained in the business to be upset by a single court decision. Kuehne didn't do anything that other companies haven't done, he says, but was simply unlucky enough to run up against a big company with plenty of money for a long law suit. (The case lasted a year and cost Brunswick \$75,000 and Kuehne, \$20,000.)

• **Effect on Future**—Whatever the long-range effects of the case, the interest in the decision reflects deep concern over the future of design protection.

Walter P. Margulies of the New York industrial design company of Lippincott & Margulies, Inc., sees a need for clarifying and strengthening design patent law. Design is growing in importance as a selling factor, he says, and there's greater need for product differentiation through style. Ten years ago, he says, many companies were predominantly production-minded, giving little thought to the design factor. As this attitude has changed, the need for design protection has become more acute.

Many designers feel that manufacturers will spend more money and effort on design if they know the results are protected by law. Dave Chapman comments on the Brunswick case: "If more such cases upholding the validity of design patents go into our court records, American industry, both small and large, may be spurred to even more creative research and development than we have seen in our time."

A leading furniture manufacturer who spends a lot of money on design doubts that protection for his designs would cause him to spend more. But he sees another advantage from design protection: He wouldn't have to add to his production costs to make his furniture more difficult to copy. Often, he

Mr. Site-Seeker:

*If you could buy them by the package
which packages would you buy first?*

How would you number these in order of importance to your new factory? (Place number beside each item)

<input type="checkbox"/> BITUMINOUS COAL	<input type="checkbox"/> MODERATE CLIMATE
<input type="checkbox"/> LIMESTONE & DOLOMITES	<input type="checkbox"/> TOP SEAPORT FACILITIES
<input type="checkbox"/> IRON ORE	<input type="checkbox"/> NEARBY RESEARCH FACILITIES
<input type="checkbox"/> BRINES	<input type="checkbox"/> EXCELLENT POWER
<input type="checkbox"/> MANGANESE	<input type="checkbox"/> ADEQUATE WATER, GOOD RAINFALL
<input type="checkbox"/> CLAYS	<input type="checkbox"/> COMMUNITIES WHERE LIFE IS GOOD
<input type="checkbox"/> LUMBER	<input type="checkbox"/> FAIR REAL ESTATE VALUES
<input type="checkbox"/> AGRICULTURAL PRODUCTS	<input type="checkbox"/> REASONABLE TAX STRUCTURES
<input type="checkbox"/> MANPOWER	
<input type="checkbox"/> TRANSPORTATION	
<input type="checkbox"/> NEARNESS TO MARKETS	<input type="checkbox"/> ROOM TO GROW

All these manufacturing advantages are yours in the Land of Plenty — the six great states served by the Norfolk and Western. Why not let our plant location specialists tell you about them — in detail and without obligation? Feel free to describe as fully as you think necessary the type operation you plan, your problems and your objectives — *because every word will be held in confidence*. All information will come to you carefully screened, prepared by specialists who thoroughly understand the problems of manufacturing and distribution as related to plant location.



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How Du Pont Photographic Products Help Solve 3 Tough Problems



▲ 1. GETTING A JET'S REACTIONS IN FLIGHT

It's not easy to record a fast-moving jet's performance, but the engineers of North American Aviation, Inc., solved the problem. They installed a camera loaded with Du Pont "Superior" 3 motion picture film to photograph instruments during flight. Despite temperature extremes and limited light, "Superior" 3 stayed flexible . . . brought back sharp, clear images of important engineering data.



◀ 2. WATCHING A CIRCUIT DO A SLOW BURN

At exactly what load will a circuit breaker open? That's the problem faced by technicians at I. T. E. Circuit Breaker Co. They solved it with the help of an oscilloscope and Du Pont Lino-Writ recording paper. Lino-Writ gives easy-to-read, durable records of tests even under poor conditions. To fill your testing needs, there is a variety of tough, flexible Du Pont recording papers.



▶ 3. GIVING AN ELECTRONIC TUBE A CHECK-UP

Larpen Industries, Milwaukee, Wisc., are now checking the many parts of electronic tubes by x-ray. They get accurate "pictures" of tubes on dependable Du Pont X-Ray Film. Radiographs are always sharp, easy-to-read and show flaws clearly.

Du Pont offers a complete line of industrial x-ray films that can help you produce better, more reliable products.

JUST DROP US A LINE for further information about any of the products above. Address: Du Pont, Photo Products Department, N-2420-3, Wilmington 98, Del.

says, he can't increase his prices enough to make up for all of this extra cost.

A designer also predicts a change in marketing strategy if manufacturers find they can protect new products. As it is now, many companies figure on having the market for a new product all to themselves for only a year. They try to cash in as fast as possible, skimp on production, price the item high. With more time to get back his investment, a manufacturer might put more money into making it and might price it lower with an eye for a steady market.

Celler Bares Earnings Of TV Stations, Nets

For the second time this year, a congressman has disclosed information about TV network revenues. During hearings on the industry last week, Rep. Emanuel Celler (D-N.Y.) released 1955 revenues and profits for the three nets. He also made public for the first time earnings of stations owned and operated by the networks for 1953, 1954, and 1955.

Celler's data updates the 1954 figures included in a report on the networks presented by Sen. John Bricker (R-Ohio) last May (BW-May '56, p32). Both congressmen got the figures from the Federal Communications Commission, which usually does not give out figures for any specific net or station.

• **Earnings**—The new figures document the long-recognized fact that nets depend heavily on the stations they own. Last year, for example, NBC's revenue, including that from its five stations, totaled \$159-million; without the stations, it was \$124.3-million. Earnings of the net and its stations before taxes were \$30.1-million; minus the stations, pretax earnings were \$14.6-million.

The story is pretty much the same for CBS. Revenue for 1955 totaled \$153.6-million when its four stations are included; without them, revenue was \$121.9-million. Pretax earnings of CBS and its stations amounted to \$34.8-million. For the network alone, earnings were \$20.3-million.

The third network, American Broadcasting Co., took in \$53.9-million, including income from its five stations; without them, revenue was \$33.2-million. Pretax earnings for the network and its stations were \$5.5-million; without the stations earnings were \$481,000.

Most profitable single TV station is CBS's WCBS-TV, New York, according to Celler's report. The station's before tax earnings rose from \$5.5-million in 1953 to \$9.3-million last year. NBC's WRCA-TV, New York, ranked second, with pretax earnings of \$7.2-million in 1955. That compares with \$4.8-million in 1953. **END**



Better Things for Better Living . . . through Chemistry



musical 'wind-up'...



The scratchy, squeaky hand-wound gramophone is gone. Today, the full sound of fine music comes to you with high-fidelity, thanks to electronic skills and *special steels*.

Vital parts of hi-fi speakers, for example, are tiny, but powerful *special steel* permanent magnets. They're the "vocal cords" which transmit electrical energy into audible sounds with amazing accuracy.

Special Steels For Better Living—Special magnets are just a small part of the big family of Crucible *special steels* designed for products which make your life easier, safer and more fun. And the research Crucible is doing now, insures even better steels, at lower cost, for the products you'll want tomorrow. *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE

first name in special purpose steels

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Ship fast

OVERNIGHT your shipment speeds from coast to coast on United's "Big Lift" DC-6As!

RADAR, exclusive on United's DC-6As, means faster, smoother flight, on-time dependability!

Ship sure

SPECIAL PALLETS, with recessed wheels, speed loading and unloading, help protect the load!

TIE-DOWNS, strongest in any cargo plane, keep even the heaviest shipments secure!

Ship United

RAF—Reserved Air Freight—guarantees you space dependability on *all* United equipment.

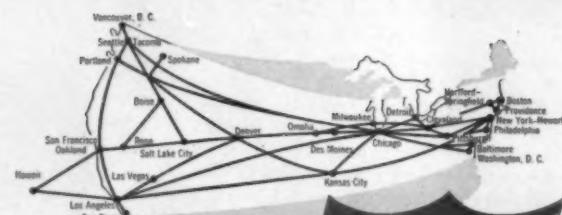
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In Marketing

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Consent Decree Ends Feud Over Philco's Distributor Contracts

Philco Corp. and the Justice Dept. settled their argument over the company's distributor contracts with a consent decree last week. The government had charged that the contracts, signed in 1954 (BW—Aug. 31 '54, p81), violated antitrust laws by eliminating competition at wholesale and retail levels. The contracts were, in fact, Philco's effort to prevent its products from falling into the hands of price-cutters.

The settlement bars Philco from entering into agreements that prevent distributors from handling the products of competitors or that prevent dealers from selling to other dealers (transshipping).

On the other hand, the government allows Philco the right to choose its distributors, to designate the geographical areas in which distributors shall be "primarily" responsible for Philco sales; Philco may discontinue the franchise of distributors who do not "adequately represent" Philco in their areas.

Company officials feel the agreement is fair enough. Transshipping is less of a problem today than it was two years ago, they say, for two reasons: Dealers feel less need to get products by this route since routine channels are more open to them, and discount houses are selling closer to list price.

• • •

Seagram Spikes Its Products With More Luxury Brands

Distillers Corp.—Seagram's spelled out some drastic changes in its whiskey lines last week. At a convention of the distributors of the House of Seagram, Inc., the distiller's selling organization, officials announced a juggling of lines that pointed in two directions: (1) Seagram, as expected (BW—Feb. 22 '56, p46), is moving deeper into straights; (2) it is putting increasing stress on brands at the upper end of the price scale.

Specifically, here's what it's doing:

- Reviving a luxury brand name, Seagram Pedigree Bourbon, in a limited market, Texas.
- Taking Paul Jones gin off the market; replacing it with a new, higher-priced Four Roses gin.
- Axing Calvert White gin, adding Calvert Golden gin, again a higher-priced brand.
- Dropping three "B" blends—Gallagher & Burton, Wilson's, and Hunter. The old Hunter name is graduated to a blend of bourbons. It will continue to sell Carstairs, and will expand its "B" blend, Kessler, to a national brand.
- Expanding its line of wines, cordials, and adding an extra Scotch.

Seagram first stepped off the blend wagon last year, when it brought out Four Roses as a blend of straight bourbons as well as a whiskey blend. Now it has sub-

tracted three more blends, converted one blend (Hunter) to bourbon, and added another high-priced bourbon. For a company that held to the blend business for years, this is quite a turnaround.

In explaining the greater emphasis on high-priced lines, a Seagram official says that this year its more expensive goods have gained better than the lower-priced brands. Its V.O., 7-Crown, and Calvert Reserve, as well as its Golden Gin have all shown better-than-average gains. Over-all, sales for the fiscal year ending July 31 are up slightly—hurt by the poor showing of some of the lower-priced brands.

• • •

Westinghouse Stations Tune Out NBC With Local Programs on Weekdays

New evidence that local radio programming is gaining ground at the expense of network programs showed up last week. Westinghouse Broadcasting Co. announced that its radio stations in Boston, Springfield, Cleveland, Fort Wayne, and Pittsburgh are dropping their affiliation with National Broadcasting Co. for daytime weekday programs. And it hinted that they might cut off NBC evening and weekend programs "in the near future."

Donald H. McGannon, president, said that the stations' income from the network was not proportionate to the time the programs occupied. Before this, these stations have averaged about 34 hours of daytime NBC programs.

The growth of local programs is a trend that has been in evidence for several years. Last year, network time sales accounted for only 12% of the radio industry's total time sales; local operations accounted for 61% (BW—Mar. 17 '56, p62). National spot sales are also gaining this year. Broadcasting-Telecasting magazine reports that Station Representatives Assn. figures show an 18% gain in national spot radio time sales for the first five months of 1956.

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Marketing Briefs

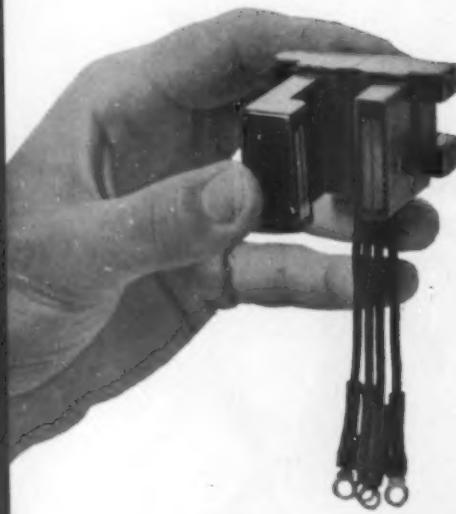
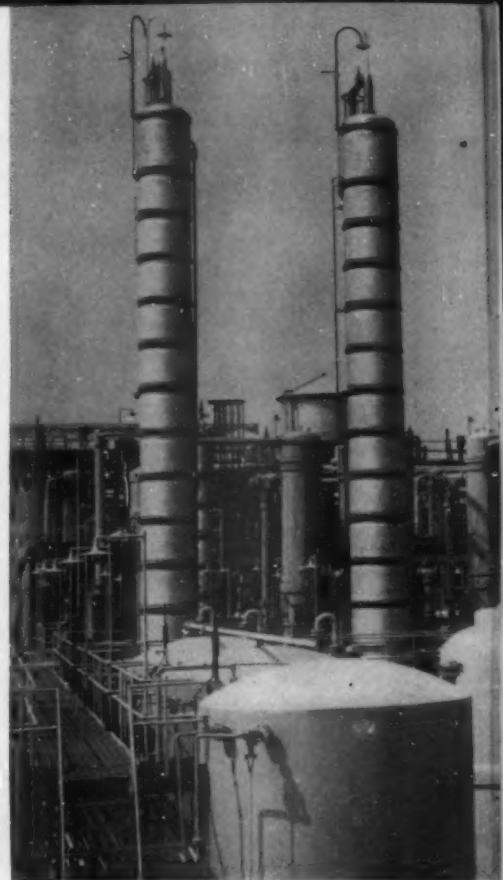
CBS-Columbia has given up its battle for existence. Last week, Columbia Broadcasting System, parent company, said it would discontinue the sale and manufacture of radio and television sets through CBS-Columbia. The decision doesn't affect other manufacturing divisions or research facilities, top officials emphasized.

Local ads—and local news—will be a feature of Electrical Merchandising, a McGraw-Hill publication serving the appliance field, starting in September. A special New York section, called the Metropolitan, will be included in copies that go to New York, New Jersey, and Connecticut. If this venture works, the magazine may add other localized editions.

Worms are big business in Savannah, Tenn. This town of 4,500 has three big worm ranches that ship 1.5-million wigglers a day all over the world. In tribute to this prop to its economy, the town's new radio station's call letters will be W-O-R-M.

Looking for new ways to

Save in making ...save in selling?



Six-time savings! This single coil embedded in BAKELITE Brand Epoxy Resin replaces six coils usually needed in a special starter motor. It virtually eliminates coil changing, reduces stocking of coils and starters. The resin penetrates every crevice of the assembly, then hardens into a tough, dimensionally-stable mass that holds each element of the assembly firmly in position.

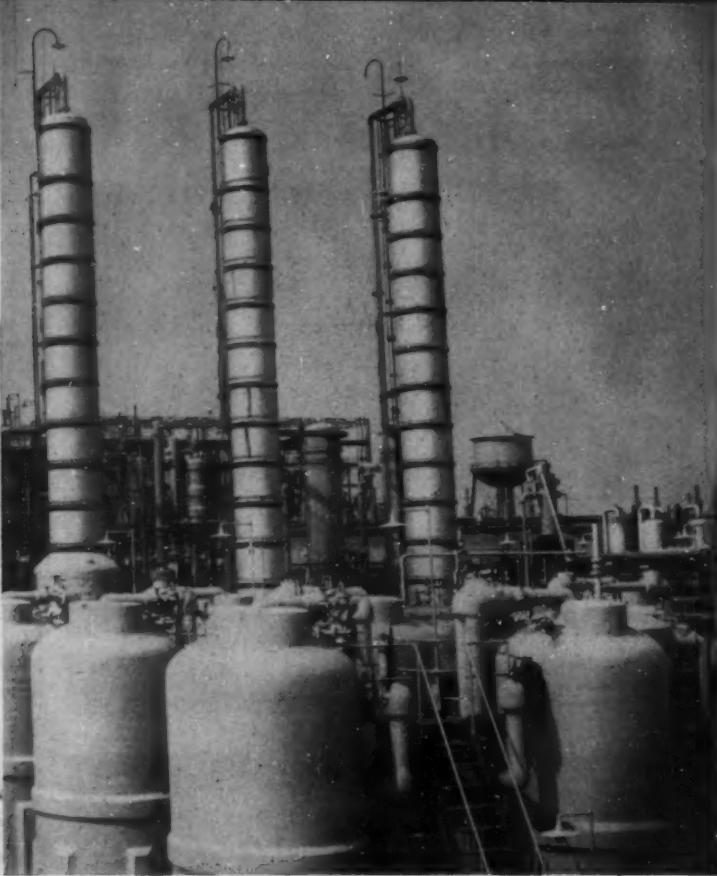
Are you manufacturer . . . retailer . . . shipper?

Makes no difference what part of the producer-to-consumer chain you're in, you can find important savings by making good use of BAKELITE Brand Plastics.

You can cut the cost of a building . . . and make it better. You can slice the cost of maintenance of plants and equipment. You can save in getting your products to the user, or on the shelves of retail stores . . . and build into your products greater utility and appeal to move them faster off the shelves. You can cut the high toll of spoilage, seconds and markdowns.

When you come to Bakelite Company you work hand in hand with the source of greater variety, resources and facilities in plastics to do your bidding—be it to make more and sell more . . . or save more in either case.

Drum liner formed from extruded sheets of BAKELITE Brand Polyethylene resists corrosive industrial acids. Saves weight, too. A 13-gallon liner measuring 19" x 15" weighs only 8½ lbs. Strong and non-shattering, the liner can be filled or emptied in or out of the drum. BAKELITE Polyethylene is also used for the tight-fitting pressure cap closures and a pouring spoon that prevents spillage.



Savings in maintenance here! Savings in the hundreds of thousands of dollars shown in painting-cost records kept by the Texas City plant of Carbide and Carbon Chemicals Company, A Division of Union Carbide and Carbon Corporation. Despite severe conditions of service, painting costs decreased steadily over a five-year period after changing to coatings based on BAKELITE Brand Vinyl Resins.

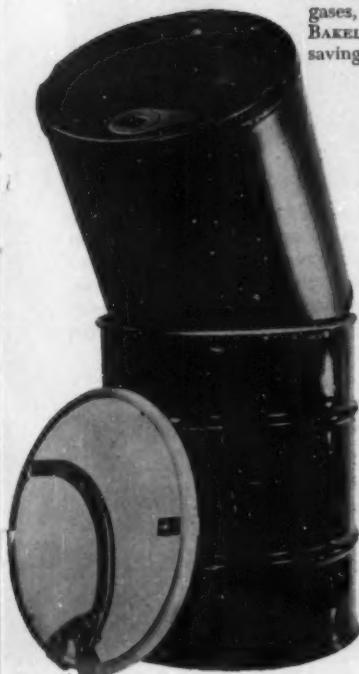
Whether for office buildings, factories, interiors or exteriors . . . for any type of surface, for resistance to acids, alkalis, salt spray, industrial gases, wear and abrasion . . . coatings based on BAKELITE Resins are superior in performance and savings.



Savings plus sales appeal! Round Tables Associates reports, "These packages (film made of BAKELITE Brand Polyethylene) save us money and save our customers money. The savings in cost is material for both, while lack of damage to the package and contents is extremely important. Now we can ship six packages in the same style carton. And, the polyethylene bags give much better line identification and instant identification of style." Investigate packaging in film made of BAKELITE Polyethylene for soft goods, hardware, foods, or any product. It pays.

First in the world of plastics

Did you know? Sparkling break-resistant tumblers for restaurants, institutions, factory cafeterias are made of BAKELITE C-11 Plastic, and, in rough day-to-day use, have lasted up to 8 times longer than conventional types.



Write to Dept. SJ-14 for names of suppliers of products described.

BAKELITE COMPANY

A Division of Union Carbide and Carbon Corporation UCC
30 East 42nd Street, New York 17, N. Y.

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC



What's NEW in Mechanization?



"Yes, we have banana stalks!"

Banana stalks don't burn, so they have to be hauled to a dump. The easy answer is a Jeffrey grinder which chews them up as fast as they're stripped — together with crowns and waste fruit — and flushes them down the sewer. Housekeeping is made easier, valuable warehouse space and labor are saved, soon paying for the Jeffrey grinder.



When two communities team up to plan and construct a sewage treatment plant, as Campbell and Kenton counties did here at Bromley, Kentucky, both profit. A larger, more efficient plant results and operation is concentrated under a single head. This cooperative idea is gaining rapidly; Jeffrey engineers are working similarly with other groups. Their broad experience covers all kinds of treatment needs and Jeffrey equipment can be depended upon to perform well and faithfully.

We can help you with modern, efficient equipment for Materials Handling • Chain Applications • Materials Reduction • Processing • Sanitation • Mining . . . and with a contract engineering-manufacturing service for your products.



"Build your own" has hit many plants with needs for special conveyors. Factory engineers lay out systems to meet exact requirements. Then they select standard Jeffrey chain, fittings and sprockets, belt idlers and accessories accordingly. On many of these items they get immediate delivery from Jeffrey distributors.



JEFFREY

Founded in 1877

THE JEFFREY MANUFACTURING COMPANY • COLUMBUS 16, OHIO

To buck the steel giants, McLouth Steel had to gamble on new methods—and it was Pres. Merlin A. Cudlip who found money to expand and led McLouth into . . .



Growing Profits on a Heavy Debt

Three weeks ago, Detroit's McLouth Steel Corp., issued checks totaling nearly \$10.7-million in part payment of a somewhat unusual loan. Three years before it had borrowed \$105-million from General Motors Corp., some banks, and insurance companies. The sum was five times the company's plant investment at the time. What's more, only twice in its 22-year history had McLouth earned more in a year than the average annual payment on this debt.

Some McLouth officials felt their big check-writing occasion merited ceremony, but tall, 59-year-old Merlin A. (Bud) Cudlip (cover), the company's president, vetoed the idea. He commented: "They showed their faith in us by lending us the money. Why ask congratulations for paying them back?"

So the checks changed hands in the back room of a Detroit bank.

• **What Makes a Pioneer**—Cudlip's matter-of-fact attitude hides a bizarre approach to running McLouth Steel, one of the nation's youngest and fastest growing steel companies. Its capacity of nearly 1.4-million ingot tons is small potatoes in comparison with U.S. Steel's 39.2-million ingot ton capacity, and it ranks 15th in the industry.

But despite its modest size, McLouth has long been a pioneer among steel companies. Its exploration into new financing systems and production methods has been motivated more by necessity than by choice. Always cash-hungry and debt-ridden, McLouth has had to go through many corporate contortions to stay alive and healthy. These contortions, however, have frequently landed it out in front in some phase of steelmaking.

Part of the proceeds of the \$105-million loan, for example, went to build the first oxygen converter in the U. S. (BW-Mar. 26 '55, p73).

• **Integrating in One Jump**—The story of the \$105-million loan explains McLouth's way of operating, and why it has had to pioneer new ground.

In 1952, earnings dropped to \$4.2-million from 1950's \$5.7-million high. Scrap steel was in short supply, and its price was fluctuating widely. Since McLouth's electric furnaces could use only scrap, it was in a weak competitive position compared with integrated concerns.

The late Donald B. McLouth, founder, and president at that time, decided to integrate the company completely—in one swoop. The \$105-million

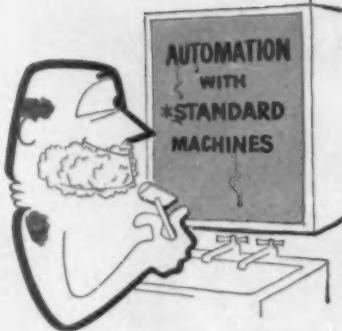
loan plan covered a new blast furnace, a new steelmaking plant that would include a continuous cold-roll plant in Gibraltar, and improvements to existing facilities.

• **In Its Favor**—The debt load would be staggering, but the outlook wasn't completely dark. McLouth Steel had a long record of regular debt repayments, making it an excellent credit risk. Besides that:

- It was located in the auto industry's backyard, and the bulk of its production ended up on wheels, so the auto industry would do all it could to help. To the auto firms, the presence of steelmakers in Detroit means delivery within hours on rush orders.

- McLouth and other Detroit mills enjoy a cost advantage. Because steel companies absorb some of the transportation costs, a Detroit auto maker pays roughly the same for a ton of steel from Detroit or Pittsburgh, leaving a better margin for the Detroit producer.

- McLouth held a strong position in the stainless steel market—about 73% of its stainless production going to the auto industry (which also takes about 80% of its carbon steel production). Stainless accounts for about



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PRODUCTION MAN on McLouth Steel's team is veteran steelman Ivor Bryn, shown observing strip mill operations; he helped McLouth pioneer its oxygen conversion process.

7.2% of McLouth's net tonnage production and (because stainless sells for far more than carbon steel) roughly 32% of gross income.

As part of the transaction, GM agreed to buy at least 5% of its annual steel requirements from McLouth.

Cash Budget—With all this, McLouth still had to show the lenders that it could handle the debt burden. Cudlip and a team of other financial whizzes drew up a cash flow projection (BW-Apr. 28'56, p46) covering cash income and disbursements through the end of 1959. This cash budget included detailed sales and cost estimates. For loan repayment purposes, it treated the depreciation allowance as cash income. For example, if the company had \$1-million net after taxes and scheduled \$10-million depreciation, it would have \$11-million that year toward paying off the debt.

That's how, after paying \$8.75-million in principal and interest since 1954, Cudlip was able three weeks ago to sign the checks for almost \$10.7-million—though McLouth's net in the last three years totaled only \$15-million.

Cushion—On paper this would mean that when McLouth had paid all its long-term debt it would have used up

much of its depreciation money and would have a hard time replacing plant or expanding. Cudlip's answer: The new equipment will yield high enough profits to provide a financial cushion. He points to 1955 net—a record \$8.1-million, \$2.4-million ahead of the previous high of \$5.7-million in 1950.

Challenge—It's when you look into the breakdown of the \$105-million loan that you see the challenge that led McLouth to pioneer the oxygen process.

Insurance companies took more than 55% of the total.

GM alone took 23.4% of the total—or \$25-million in 5½% cumulative participating preferred stock. American Metal Products Co. took \$2-million of this stock.

Banks filled in the remainder—\$14-million—for 3½% secured notes due by the end of 1958.

With auto company money involved, that meant the new facilities would have to produce the types of steel in chief demand by auto makers. McLouth would have to build a cold-roll mill, which turns out sheet steel for auto bodies. This would put McLouth in direct competition with steel industry giants.

The big challenge, then, was to find

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a faster and cheaper way to make steel. McLouth would have to gamble on relatively new and untested methods.

- **Lot for Its Money**—So the core of the company's entire steelmaking expansion is equipment in which 99%-pure oxygen can be used, under special conditions, in the manufacturing process.

In the conventional Bessemer method, compressed air is injected into the bottom of a vessel in which molten iron is to be converted to steel. In the oxygen process, the almost-pure oxygen is forced under high pressure into the top of the converter vessel. The result is cheaper, better steel.

McLouth today pours about 600,000 tons of steel annually from its three oxygen vessels at a cost equal to or lower than open-hearth steel. The company got a lot for the money it put into the oxygen process plant opened in 1954, and its other new facilities. Cost of the new steelmaking capacity paid for by the \$105-million loan works out to about \$100 per ton of ingot capacity—against \$250 per ton for an integrated plant, not using the oxygen process, built by another company at the same time.

- **Swelling Figures**—McLouth's sales in 1955 hit a record \$145-million, against 1954's \$59-million (the mighty 1955 surge in auto sales accounted for most of this). Earnings were \$4.53 per share in 1955, up from 66¢ in 1954.

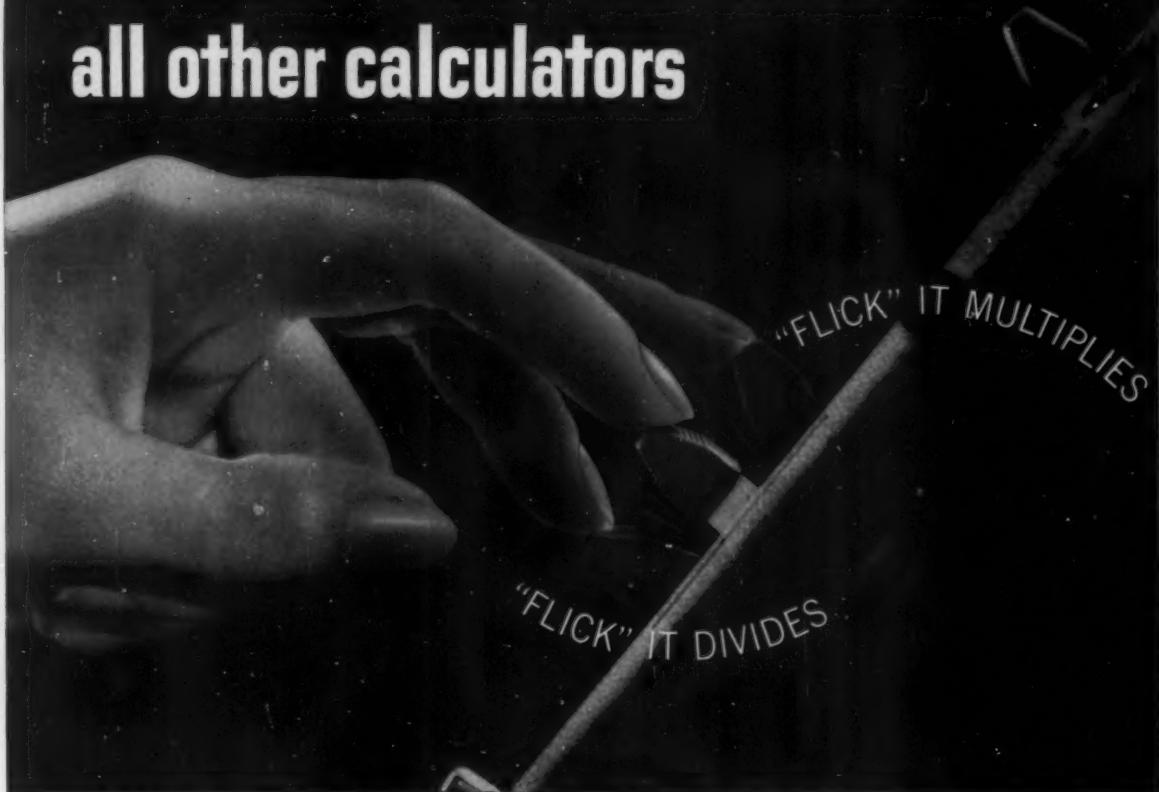
So far the current steel strike hasn't affected McLouth's operations. It took advantage of a union offer of a 30-day contract extension, making any additional benefits in the new contract retroactive.

- **Pioneering Backwards**—McLouth today operates three plants: Detroit makes mostly stainless steel; Trenton (Mich.) makes, melts, and hot-rolls steel; Gibraltar (Mich.) cold-rolls steel.

Most steel companies built steelmaking plants first, then put in rolling mills. But McLouth has integrated in a series of steps backward. Big Don McLouth, an enthusiastic hunter and fisherman, got into steel in the 1920s, and in 1934 organized McLouth Steel to process slabs into rolled strips for sale to auto companies. His basic equipment was a single-stand, reversing rolling mill ("the old coffee grinder") of a type not used before in the U. S. steel industry.

It cost only \$350,000 originally and could operate comparatively cheaply—but getting it to function properly taxed both bankroll and patience. Eventually it did, thanks to a veteran steelman, Ivor Bryn (picture, page 72), whom McLouth hired to direct operations. By that time the company was skating on thin financial ice—and that's when Cudlip, who was vice-president and secretary of Packard Motor Co.,

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came in as vice-president and treasurer to handle the financial side.

In 1954, when McLouth died suddenly of a heart attack, Cudlip became president, retaining also the treasurership. Later Bryn became executive vice-president. Louis E. Moulane, with McLouth since 1928, became executive vice-president for sales.

• Money Man—Since he came, Cudlip's big job has been finding money to expand.

• In 1938, McLouth added a four-stand reversing cold mill and other equipment. Cudlip got the needed loans, paid them back through earnings.

• In 1945, he financed a \$1.7-million expansion for stainless steel manufacture, again paid back out of earnings in a few years.

• In 1947, with steel tightening, McLouth faced a cutoff of its supply of slabs, and had to go into steelmaking or go under. Its plant investment was then \$2.8-million, long-term debt \$350,000, net for 1947 \$1.7-million. It needed \$22.5-million to buy four electric furnaces that would produce nearly 600,000 tons of steel a year and make it the only steel company using electric furnaces exclusively for high-carbon as well as stainless steel.

The auto industry wanted to keep McLouth handy. GM loaned \$4-million, Ford Motor Co. \$2-million, Briggs Mfg. Co. and American Metal Products \$1-million each. The Reconstruction Finance Corp. put up \$14.5-million.

• Eyes Forward—Though the 1953 \$105-million deal gave McLouth a debt big enough to scare almost anyone, Cudlip is still looking ahead to further expansion. Up to now the fortunes of McLouth—as well as some other steel companies—have risen and fallen with the auto industry, the largest single user of steel sheets and strip.

Now Cudlip is pushing stainless steel development because it's the one market in which McLouth might be able to gain a measure of independence from the auto industry. Cudlip and his colleagues believe stainless has considerable growth ahead—and they intend to grow with it.

Auto makers take the largest share of all stainless strip produced, but potentially a much larger stainless market is believed to exist for sheet (which McLouth also produces) used in food processing equipment, restaurants, construction.

One Cudlip project calls for exploring taconite (low-grade iron ore) reserves through Ashland Mining Corp., of which McLouth owns 50%. But in steelmaking, stainless is the big thing. Cudlip reports: "When I asked my people recently what our next expansion should be, you know what they all said? More stainless capacity." END



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Do Training Programs Work?

● Harvard group suspects that company-imposed programs probably are ineffectual.

● Best thing, says Harvard, is to give employees a chance to forge ahead on their own.

Companies on the lookout for ways to improve employee relations and productivity have been opening their doors and purses more and more to social scientists. Under this stimulus, the number of these specialists has fattened into a little industry of its own that turns out all kinds of training and productivity programs designed to help business lick some of its biggest employee problems.

Now, Prof. Abraham Zaleznik of the Harvard Business School's human relations program has come up with some theories that threaten to jiggle, if not upset, the apple cart.

In a recent report on work groups, Zaleznik says that most present company productivity programs are probably ineffectual; If permitted, work groups themselves can do a better job of assuring worker job satisfaction and productivity than almost any program imposed from above.

• **New Thinking**—This jolt from such a reputable hall of learning may shake up quite a few managements that are heavily involved in improving their employees. It undoubtedly will confirm the doubts of many executives as to how good their programs are. However, it doesn't mean that the social scientists are being shown the door. If anything, it means more business for them.

The major point of his report, says Zaleznik, is that most industry work groups, though adjusted to their work situations, are operating at nowhere near capacity. Management's biggest job over the next few decades, he says, is not to develop projects for motivating workers but to find out how to let them surge ahead on their own. And this, he says, means lots of new and very basic research on work groups at all levels.

• **The Reasons**—There are all kinds of reasons given for this new romance between business and the scholars. Generally, they follow one of three lines:

• With labor scarce, organized, and expensive, many managers worry more about their employees, their productivity, and their satisfaction.

• Management is becoming more flexible in its approach to these problems, and feels it could use new insight into its principal asset: people. The scientists, on their part, have come to recognize men's jobs as an overlooked

phase of human life, and see industry as a handy combination laboratory and source of funds.

• The social sciences have just begun to reach the stage where they can be applied with predictable results. They offer an eventual payout on the time and efforts they involve, and so become an investment.

• **Nationwide**—Other studies abound, too. In almost every major university or research center some form of social research into industry is either under way or getting organized. In a quick sampling you find:

• The University of California (Berkeley) teaming up engineers and psychologists to analyze highly routine jobs to try to eliminate some of the deadly monotony.

• The University of Michigan's Survey Research Center studying productivity in scientific personnel.

• Carnegie Institute of Technology analyzing the decision-making process.

• The American Institute for Research (Philadelphia) continuing its leadership identification studies.

• Yale's Institute of Human Relations working on the effects of automation, electronic data processing, and mass production on employees at all levels.

• Harvard's Graduate Business School taking a close look at how informal social groups affect production, morale, and other factors.

Companies, too, have a variety of programs under way. General Electric Co., American Telephone & Telegraph Co., Standard Oil Co. (N.J.), and Pillsbury Mills, Inc., for example, are immersed in research projects of their own, and other companies offer themselves as guinea pigs to research groups.

• **New Interest**—What is happening, of course, is that as fuller concepts on how and why people react on the job become available, companies get interested. Psychological tests and human relations training have now become popular tools and such companies as the Research Institute of America, Inc., Richardson Bellows Henry & Co., Inc., and Psychological Corp.—all of New York—as well as groups such as Pittsburgh's American Institute for Research have arisen to explain and apply the findings to management. So you see



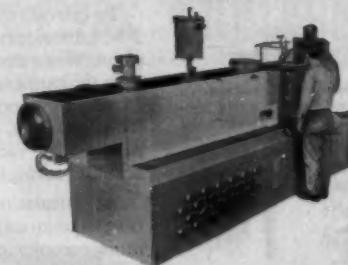
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the growth of another new management service industry staffed largely with scholastic types acting as interpreters and consultants.

• **Pros and Cons**—While many new concepts have been developed and tried out, up to now the general trend has been to put the burden of keeping workers happy on management-devised, management-operated systems. So the Harvard report, which intimates that the wisest move is to leave employees alone, comes as a bit of a shocker.

Right or wrong, the Harvard group's findings will meet resistance. Most companies have a vested interest in their programs as does every researcher who helped devise them. Nevertheless, the Harvard group is going to find an audience.

• **Wrong Tree**—Zaleznik bases his findings on studies by other investigators as well as on his own work with a machine shop work group. In essence, he finds that work groups are socially very hardy organisms. If they are not interfered with too much, he says, they always manage to evolve an informal organizational system that supplements management's formal system, supplies both the emotional support and the stimulation that its members need, and which meets production requirements.

Zaleznik, from what he sees, concludes that plenty of management training and motivation programs are on the wrong track. Given a chance, he says, the informal organization in a work group does a better job of keeping workers productive and happy than any arbitrary company system.

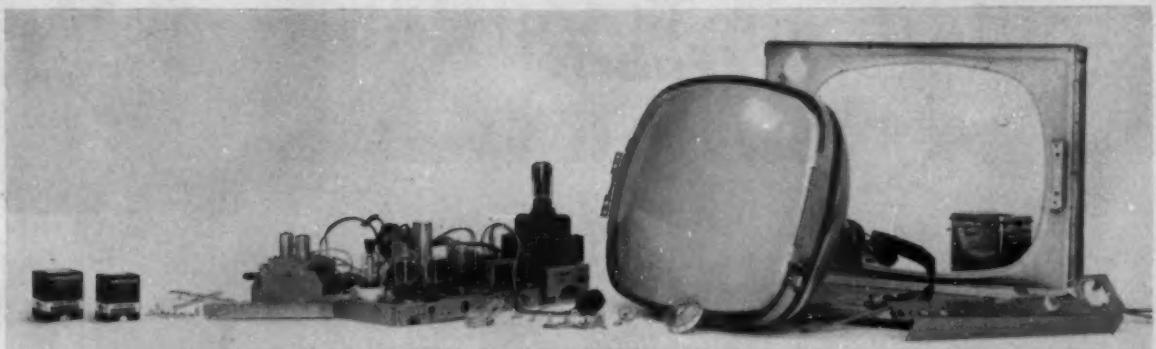
"But that's only the half of it," say fellow researchers, who think Zaleznik is bringing out some basic and overlooked truths when he concludes that though work groups show great ability to adjust to various job situations, in doing so they tend to lose vitality. That is, they become "adjusted," but "frozen" or static. The results are that:

- Group members get little chance for personal or emotional growth.
- Members get no chance to participate in the development of their jobs or the economy, but are carried along passively.

- Production meets minimum requirements, but adds up to only a portion of what it could be if work groups' enthusiasm and creativity could be tapped.

Right now, says Zaleznik, relatively few people have a chance to get meaningfully involved in industry. As technology increases, this situation is likely to intensify and, to the degree that employees realize it, they are unhappy. Over the next few decades, he thinks, management's single biggest job will be loosening up this stiffness that keeps work groups idling along at half speed. **END**

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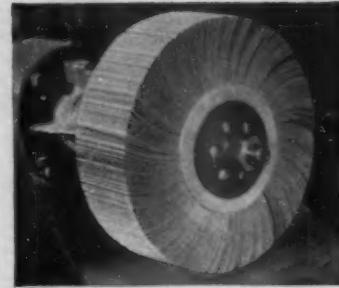
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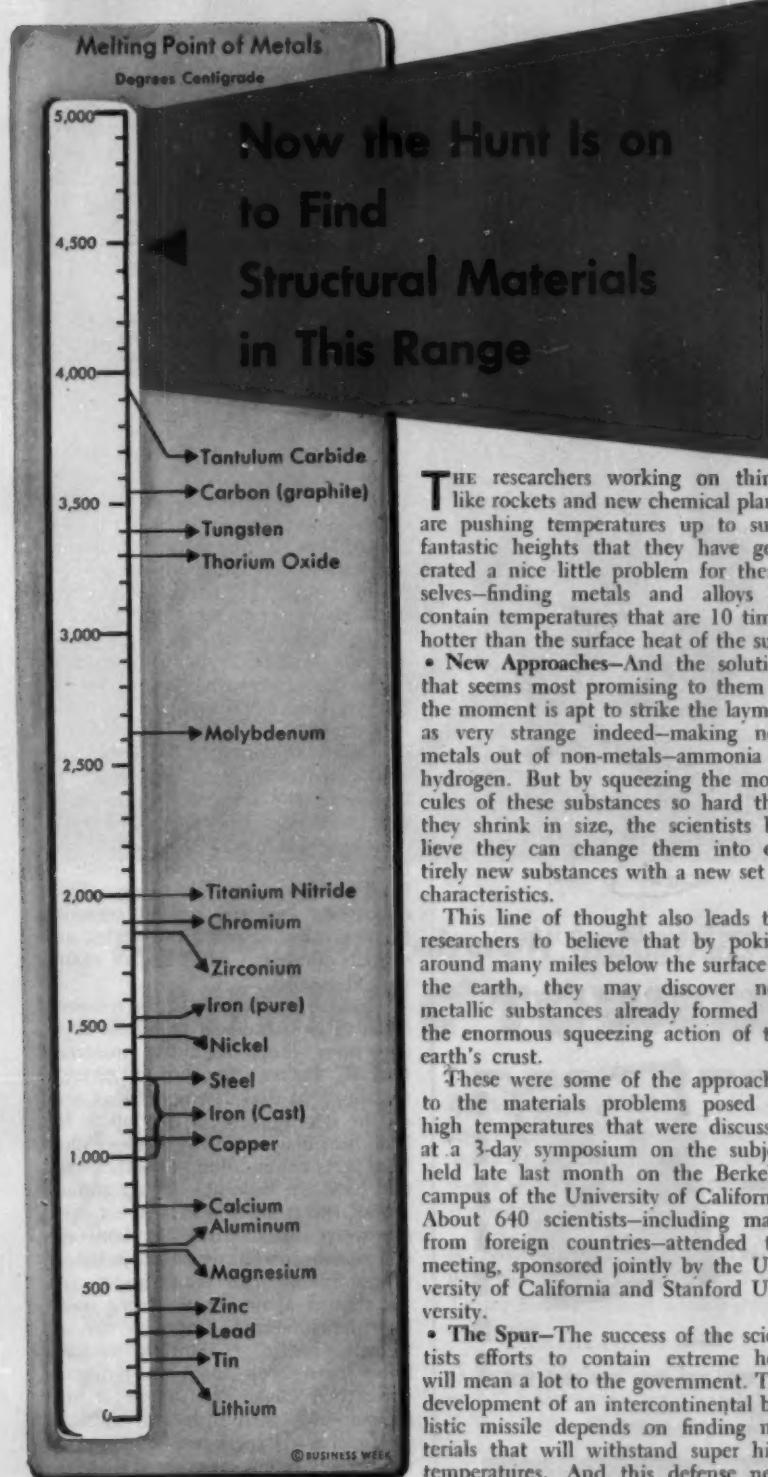
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Coping With High Temperatures



THE researchers working on things like rockets and new chemical plants are pushing temperatures up to such fantastic heights that they have generated a nice little problem for themselves—finding metals and alloys to contain temperatures that are 10 times hotter than the surface heat of the sun.

• **New Approaches**—And the solution that seems most promising to them at the moment is apt to strike the layman as very strange indeed—making new metals out of non-metals—ammonia or hydrogen. But by squeezing the molecules of these substances so hard that they shrink in size, the scientists believe they can change them into entirely new substances with a new set of characteristics.

This line of thought also leads the researchers to believe that by poking around many miles below the surface of the earth, they may discover new metallic substances already formed by the enormous squeezing action of the earth's crust.

These were some of the approaches to the materials problems posed by high temperatures that were discussed at a 3-day symposium on the subject held late last month on the Berkeley campus of the University of California. About 640 scientists—including many from foreign countries—attended the meeting, sponsored jointly by the University of California and Stanford University.

• **The Spur**—The success of the scientists' efforts to contain extreme heat will mean a lot to the government. The development of an intercontinental ballistic missile depends on finding materials that will withstand super high temperatures. And this defense need

is the spur for much of the high temperature research that is being carried on today.

But businessmen also have a big stake in this research. Right now there just isn't any metal available that can withstand temperatures over 3,500 C. The temperature graph at the left shows the degree of heat the various metals now used by industry can withstand.

But even these metals are often not adequate for some of the jobs industry would like to do. None, for instance, can contain the 1-million-deg. heat needed to get atomic energy from hydrogen—and this is hampering atomic fusion power development.

• **Industrial Applications**—So any materials developed for missiles could be adapted to a wide range of industrial processes. In addition to atomic power, these might include reduction of ores, preparation of pure metals, cracking of hydrocarbons, fixation of nitrogen, and gasification of coal. Furnace materials with a higher melting point conceivably might mean that aluminum and iron could be wrung out of their ores with far greater economy and certainly greater efficiency.

Another possible application might be the synthesis of diamonds, an achievement that General Electric announced last year (BW—Feb. 19 '55, p64). Because the GE technique has been declared secret by the Air Force, its discoverer Dr. H. Tracy Hall was allowed to make only the barest reference to it at the Berkeley meeting. But he did say carbonaceous material is converted to synthetic diamonds in apparatus known as "the belt" under pressure of 1.6-million psi and a temperature of 2,500C and, he reports, it is reasonable to assume that once a high-temperature resistant material is made available, General Electric would be in an immediate position to produce synthetic diamonds on a commercial scale instead of on a very limited basis as at present.

• **Big Job**—Dr. Hall, who is now a professor and director of research at Brigham Young University, feels sure new metals will eventually be developed by subjecting currently available substances to tremendous pressures. Ammonia, which at ordinary temperatures is a gas, already has been changed into a metal when put under 3-million psi. Other substances, he feels, can be expected to act in the same way. But before such things can be accomplished, there's a

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UNITED STATES STEEL

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STORY starts on p. 83

lot of pick and shovel research still to be done. And specialists from a number of fields—physics, chemistry, and metallurgy, in particular, will have to put their brains into the job.

The high temperature that science is now seeking to conquer ranges upward from 2,000°C—far higher than the temperature inside a blast furnace.

• **Short Run Prospects**—It's not sheer idleness to speculate in terms of such temperatures, either. Science already has learned how to generate heat of this magnitude. Nuclear reactors for high temperature reactions (up to 1,400°C) already appear technically feasible. And Atomic Energy Commission spokesmen predict that once industry gets a taste of what such reactors can mean to manufacturing operations, the cry will be on for even higher temperatures. Some of the reactions that will immediately be involved include production of acetylene from natural gas, production of hydrocyanic acid from methane and ammonia.

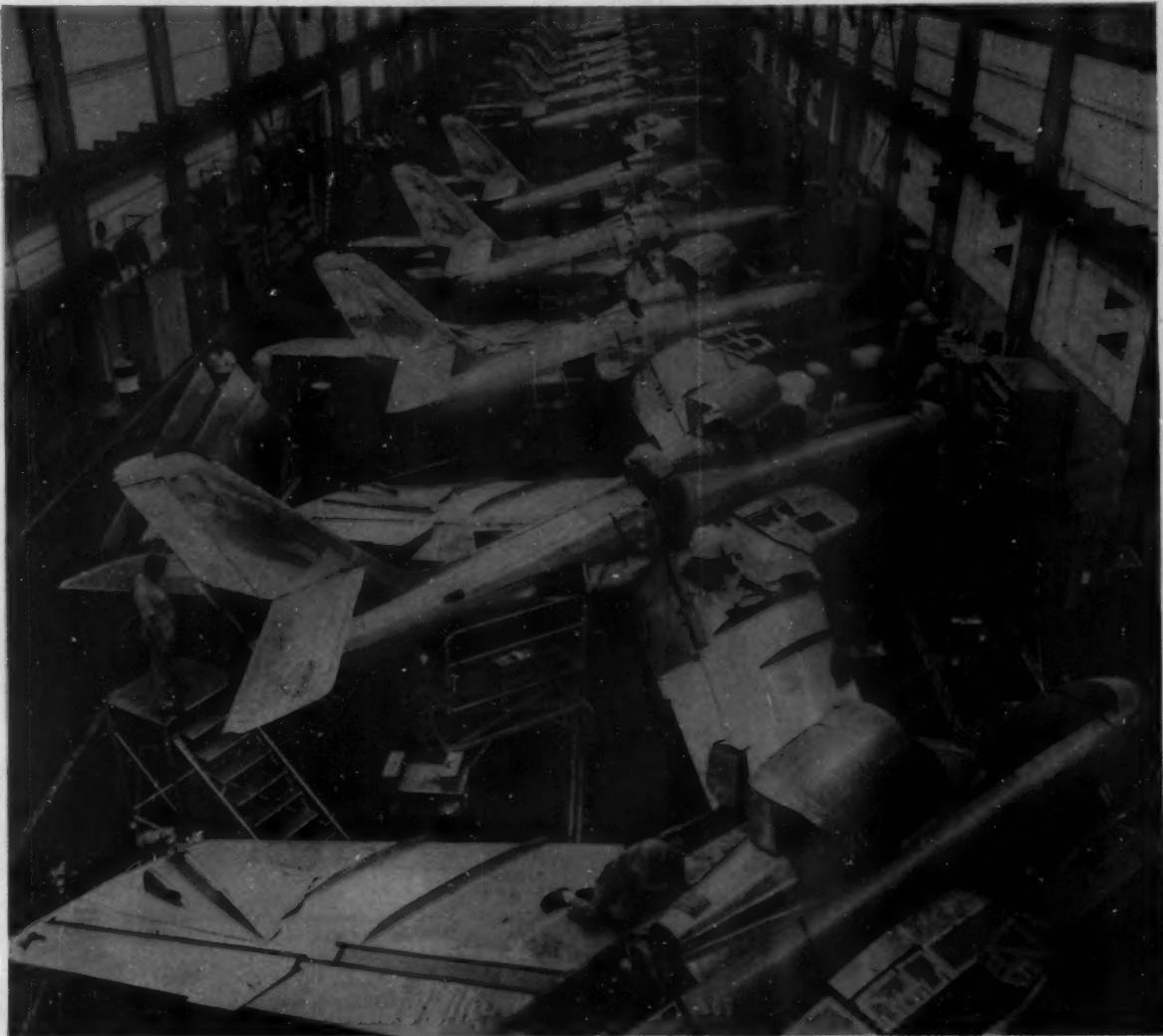
The enthusiasm with which more economic production of such materials is sure to be greeted as the reason why the problem of finding materials with a higher heat resistance is so urgent. Though the prospects for developing new materials in the long range are promising, the scientists conferring at the California symposium continually returned to the question of what could be done to make materials already in hand serve for the time being. Their discussions centered around ceramics, borides, carbides, refractory oxides, and cermets (materials composed of ceramics and metals).

• **Leading Candidate**—At the moment, ceramics would appear to hold a slight edge over other candidate materials. Earl R. Parker, professor of physical metallurgy at Berkeley, noted that work on the development of new alloys has been discouraging on the whole. Alloys have certain limitations that the scientists have not been able to get around.

And the cermets persist in retaining the worst characteristics of both ceramics and metals when subjected to extraordinarily high temperatures.

Ceramics alone remain strong under high temperatures. But they are extremely brittle. Countless research hours have been spent in trying to make them tough and ductile at high temperatures—with little real success.

• **Hopeful Experiment**—Parker described one recent experiment that may point the way toward moving the



USAF fighters—RF-84F Thunderflash—on Republic Aviation Corporation production line

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But only POWERMATIC has a built-in hydraulic retarding brake for down-hill braking. It's based on the TORQMATIC BRAKE designed and built by Allison for mammoth off-highway trucks. On down-hill runs the engine braking is increased almost six times by the hydraulic retarder and the service brakes need only



truck transmission can do

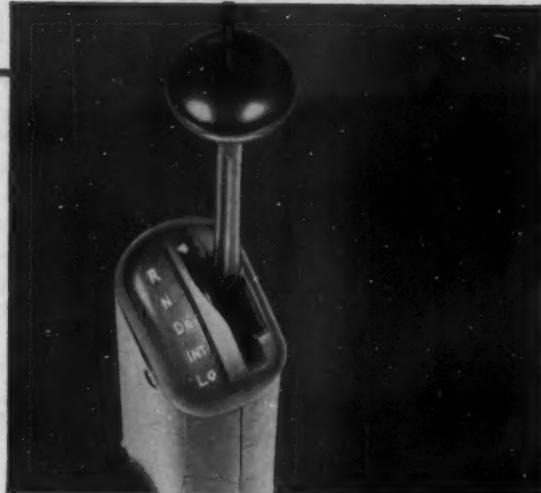
*and driving ease
specifically for trucks*

be used to snub around curves or bring the vehicle to a complete stop.

What's more, POWERMATIC slashes maintenance expense because there are no bands to adjust—in fact, there are no adjustments to be made.

And POWERMATIC brings new snap and sparkle to Chevrolet truck operation because it gives new get-up-and-go.

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"... the materials hurdle isn't stopping the scientists from trying to raise temperatures . . ."

STORY starts on p. 83

brittleness from ceramics when they encounter high temperatures:

Ice, immersed in isopentane, was held at -1C with a heavy weight on it. After 24 hours, the weight caused no change in the ice. Isobutyl alcohol was then added to the isopentane. And the ice failed—changed its state from a solid to a liquid—in 40 minutes.

However, when a chemical compound, trade-named Aerosol OT, was added to the isopentane under the same conditions, the ice appeared to become ductile. As Parker put it: "The ice began to flow slowly and bent through an angle of 15 deg. in 24 hours."

This presents a strong hope for ceramics. Some similar compound, added to the basic ceramic ingredients, possibly could give comparable ductility to ceramics at high temperatures. And experiments along this line certainly should help to throw some valuable light on the physical properties of ceramic materials.

At the moment, though, this is the only bright prospect for adapting currently available materials for high temperature use. Says one researcher: "Science has a long trip ahead before it satisfactorily answers the high temperatures materials problem."

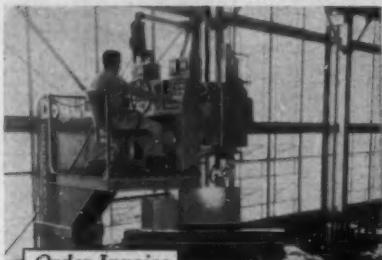
• **Raising Temperatures**—But the materials hurdle they have yet to clear isn't stopping the scientists from trying to raise temperatures even higher. In addition to discussing materials problems, those gathered at the Berkeley conference also considered how to generate and sustain high temperatures, and also how to utilize them.

Experimental use of the sun as a heat source has so intrigued physicists that it's becoming increasingly difficult to find a war surplus searchlight. The concave reflectors and carriages, with the lighting element removed, have been converted to excellent solar furnaces.

• **Solar Furnace**—The solar furnace, only one of several varieties of so-called image furnaces, have serious limitations. It can be used only when the sun is shining and it yields its energy only over a very small area. Joseph Farber of General Electric pointed out that the 120-in. aluminum parabolic reflector operated by Convair at San Diego—the biggest solar furnace yet built—offers an image only 0.34 in. in diam.

Physicists have succeeded in developing many other techniques for generating high temperatures. Such relatively

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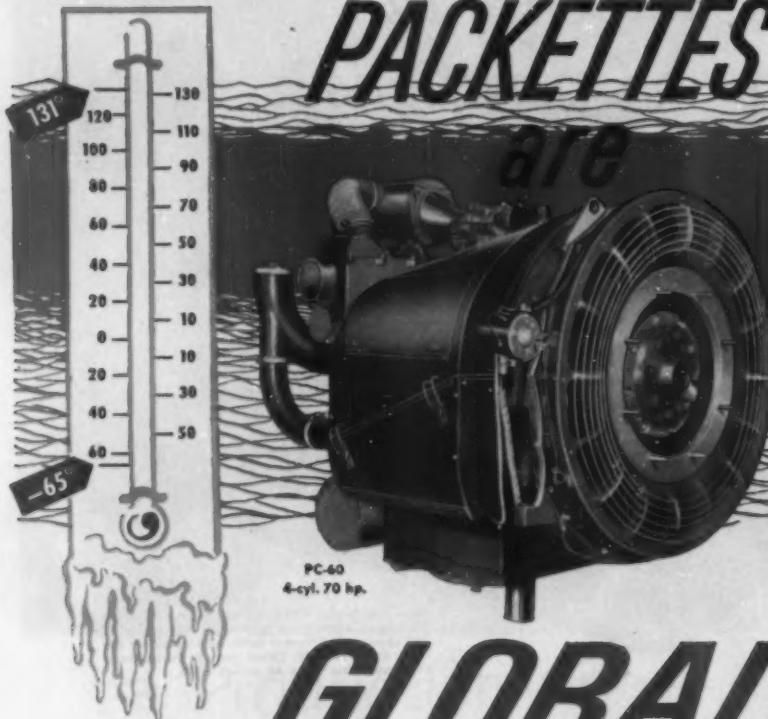
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Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

"... will engineers be able to deal with extreme temperatures when they're available? . . ."

STORY starts on p. 83

familiar devices as the carbon arc, concentrated arc discharge, electrical resistance and induction heat, and nuclear reactors all are capable of generating super high temperatures.

• **Duration**—Some of these devices will sustain an optimum heat indefinitely. The pressurized water reactor, for instance, can maintain 450F for any length of time. Others hit their maximum temperature for only the tiniest fraction of a second. A device developed at the Air Force Research Center at Cambridge, Mass., achieves a temperature of 250,000C—for a millionth of a second. This fantastic heat is accomplished by passing electric current through helium at pressures around 30 atmospheres (30 times the pressure of air at sea level).

• **Engineer's Role**—The pace of developments in the high temperature field may well be set by the country's engineers. The scientists have a good chance of licked the technical problems involved. But will the engineer be equipped technically, temperamentally, and intellectually to deal with extreme temperatures and the new materials they necessitate?

This question was posed inferentially by Dr. Wolfgang Finkelnburg, head of research at Siemens-Schuckertwerke, one of Germany's biggest electrical manufacturers. He illustrated how the engineer would have to redirect his thinking by pointing to the behavior of nitrogen at increasing temperatures. Nitrogen undergoes a molecular change at 7,000C, a thermal disassociation of molecules at 12,000C, a double ionization at 20,000C, and a predominance of free electrons at 30,000C. Such changes in state are radical, change nitrogen from a gas that is an excellent insulator to a thermal plasma (a state midway between solid and liquid) that is an excellent electrical conductor. The change is so radical that Finkelnburg says it justifies a completely new concept of thermal plasma—as a fourth state of matter, alongside gases, liquids, and solids.

The temperatures involved in changing the state of nitrogen or other materials range from 4,000C to 50,000C. This expands almost tenfold the temperature range now understood by the engineer. And it brings him into touch with the kind of theoretical thinking that you find now only among astrophysicists. END



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In Research

• • •

Air Force Probes the Jet Stream To Aid the Coming Jet Airliners

A specially trained team of Air Force scientists, technicians, and pilots from the Air Research & Development Command has started a new study of the jet stream, a fast-moving "river of air" that flows around the world from west to east and passes over the U.S. at altitudes of 25,000 ft. to 40,000 ft.

Basic purpose of the study is to obtain scientific facts about the jet stream: How fast it moves, how it changes its altitude, course, and direction. Once it gets these facts, the Air Force plans to seek methods of predicting the jet stream's movements.

• • •

Canada Promises Its Industry a Look At a New Gas Turbine Locomotive

Canadian industry has been promised a look at the experimental coal-fired gas turbine locomotive that is being developed at McGill University. Canada's Minister for Mines, George Prudham, made the promise when he asked the Canadian House of Commons for another \$100,000 to keep the McGill project going this year.

McGill researchers have now completed test runs of the turbine, and by the end of this year will be in a position to hold a symposium to show the new locomotive to private industry.

• • •

Standards Bureau Finds New Way To Look Into Depths of the Atom

The National Bureau of Standards has just come up with a new way to probe more deeply into the fundamental properties of atoms. It has developed a technique for capturing and storing large numbers of highly reactive molecular fragments at temperatures near absolute zero (-459.6°F).

Science has known for several years that molecular fragments (called unstable atoms or free radicals) existed momentarily in flames and hot gases. Now NBS is able to trap the fragments when, due to electrical discharge, they're in an excited state and able to be studied through optical spectrometers.

• • •

Not-So-Tranquil Psychiatrists Warn Anew on Tranquillizers

Harried executives who have been gulping the new tranquilizing drugs to relieve job tensions got fresh warning of danger this week.

The medical profession, already alarmed about the wide, often uncontrolled use of the drugs (BW-Jun.30'56,p78), was backed up by the American Psychiatric Assn. APA, speaking for 9,300 practicing psychiatrists, said wide use of the drugs by the public is medically unsound and constitutes a public danger.

S. J. KINNEY PACKAGING ENGINEER

Packaging Engineers are few and far between, but here is one who learned his job on the job... and learned it well. Now manager of the Chicago Office, Mr. Kinney is one of many in Kennedy's *Mile Long Line of Men and Machines* devoted to packaging the products of industry.

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Mr. Lloyd A. Johnson, President, National Motor Bearing Co., Inc.

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Industrial rivalry is a healthy American tradition that benefits us all. Competition invariably produces a better product, often for less, and at the same time broadens and strengthens the market.

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PRESIDENT

Gold Cage for a Busy Atom



THE MAN in the boiler shop (opposite page) is spinning solid gold sheet on a turret lathe, using an old axe handle as a tool. He's making a lining for a stainless steel boiler. Paradoxically the solid gold bottle is the cheapest material engineers could find for the job they had in hand.

This particular boiler will hold—for years on end—a violently corrosive hot solution of fissionable uranium phosphate salts. The gold bottle will go into the core of an experimental power reactor at Los Alamos Scientific Laboratory. From the test, the Atomic Energy Commission hopes to glean enough data to design a practical portable power source for isolated military outposts.

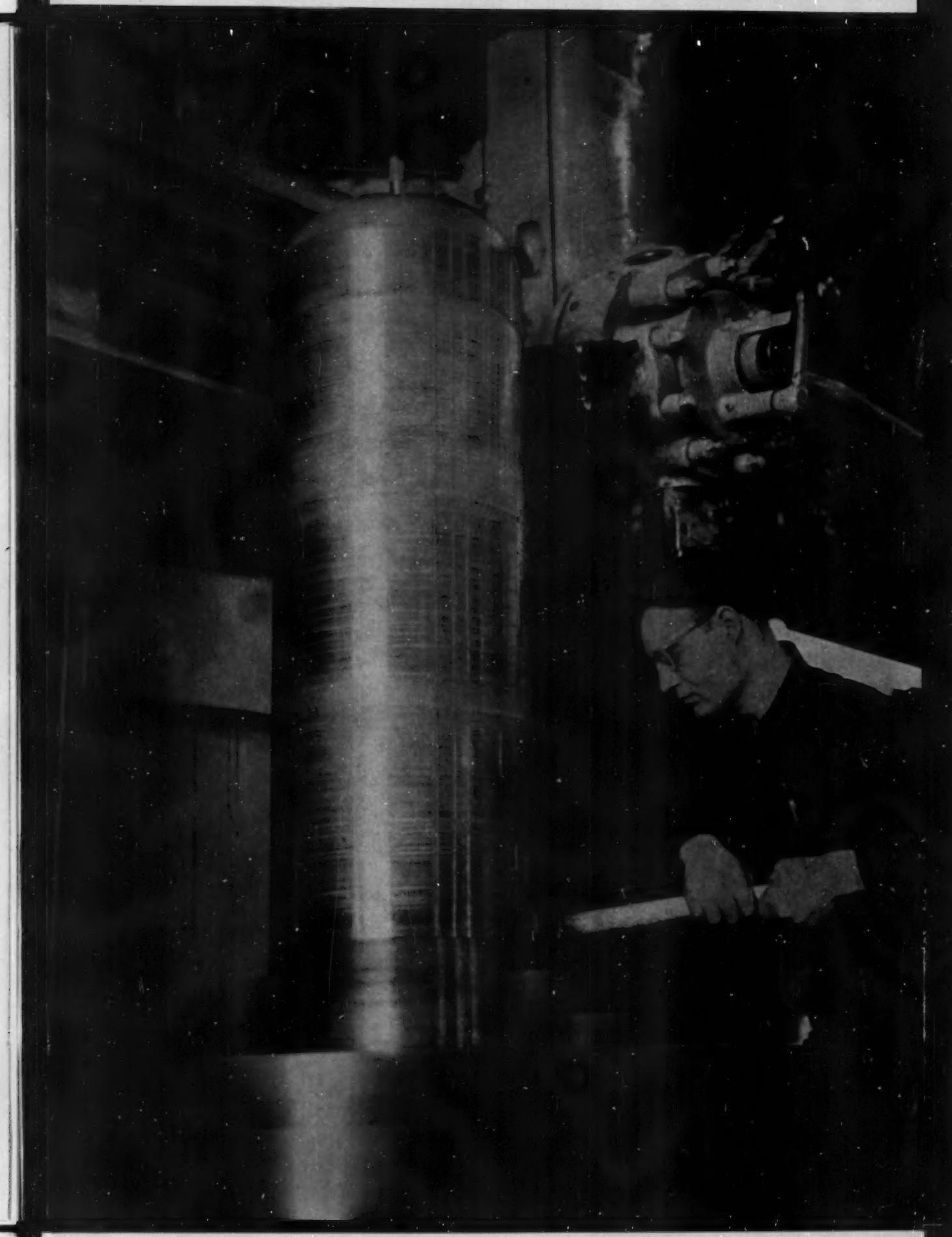
• **Homogeneous**—The reactor, one of the LAPRE (Los Alamos Power Reactor Experiment) series, is what atomic power men call a homogeneous fuel type. Its fuel, enriched uranium, is not in the usual metallic form, but is combined chemically in a soluble salt. When the salt is dissolved in water, which is an excellent moderator (or neutron speed controller), it sustains a chain reaction that produces heat. The boiler generates steam in water-filled coils of tubing immersed in the salt solution.

The AEC believes that homogeneous reactors hold considerable promise as power generators. They are essentially simple, and inherently stable. They have the fewest parts, the most ac-

GOLD CORE is lowered into the heavy stainless steel pressure vessel.

Boilermakers turn goldsmith for the AEC's latest experiment in homogeneous fuel reactors. Boiler is lined with gold to prevent corrosion by uranium phosphate solution. Worker (left) is welding sheets of the precious metal to make the special lining.







CORRUGATED boxes stand up through freezing —greet roving eyes with brand name sell

Put boxes of cut-up chicken in a freezer for months on end, and the chicken comes out good as new. But how about the boxes? Can they take prolonged cold, penetrating dampness? Experience proves they can—corrugated boxes, that is.

In this newest way to sell chicken—by the parts—family-size quantities are packed in corrugated shipping containers, stacked in the freezer, and frozen. There they stay, for a few weeks or several months, till they're unpacked for sale at the store or supermarket.

Corrugated is especially valuable in this application because freezing can't split, crack, or weaken the fibers. It's flexible enough to yield slightly under

stress. And the tiny insulating columns of air between the corrugations prevent untimely thawing once the boxes come out of storage.

Of all packaging materials, only corrugated combines the additional advantages of light weight and low-cost printing on the sides. Boxes do double duty when they help sell the brand name to the several hundred people who usually see them. In fact, color printing on corrugated boxes is one of the cheapest

forms of advertising you can buy.

The countless advantages of corrugated are being discovered by more and more businessmen every day. Have you discovered them yet? Call your nearby boxmaker. He's listed in your classified telephone directory under "Boxes—Corrugated."

Langston doesn't sell corrugated, only the machines that make it. Since 1902, these machines have led the field in efficiency and dependability. *Samuel M. Langston Co., Camden 4, N.J.*

THINK FIRST OF CORRUGATED



LANGSTON

Corrugated Container Machinery

"...a simple, compact reactor that can generate enough power to run a radar outpost . . ."

STORY starts on p. 94

cessible type of fuel, and a built-in safety valve. If the reaction gets too hot, the uranium salt solution boils, creating steam, which is a poor moderator. The steam thus slows the fission reaction rate, and prevents a "runaway." On the other hand, a solid fuel reactor requires complex control systems, designed to "fail safe," providing split second shutdown in order to prevent overheating and warping or melting of fuel elements.

• **Reprocessing**—The AEC's first homogeneous reactor experiment, called HRE-1, used a sulphate salt instead of a phosphate solution, so it didn't need a gold lined stomach to digest its fuel. HRE-1 ran for two years, was disassembled late last year to make room for the second experiment, which will also use uranyl sulphate as a fuel. HRE-2 may be one of the first reactors to realize another of the advantages inherent in the homogeneous reactors—the possibility of continuous fuel reprocessing. Since the fuel is in liquid form, the contaminating fission products from the chain reaction can be removed while the unit is operating.

But for portable power plants, the Los Alamos investigators are not interested in reprocessing fuel on the spot. They want a simple, compact reactor that can generate enough power to run a radar outpost or observation station, with plenty of time between refuelings.

The LAPRE reactors use phosphate solutions because they are likely to be more stable under conditions of high irradiation. And it's possible to get a higher concentration of uranium with phosphate salts than with sulphate solutions. That means the reactor core can be smaller.

• **Corrosion**—The trouble is phosphate salts corrode every known metal and alloy except gold and platinum. So, to get a corrosion-proof boiler, designers chose the cheaper of the two metals. For the tricky fabrication job, the Los Alamos lab called on the relatively small (800 employees) Nooter Corp., of St. Louis, specialists in custom fabricating jobs, such as stainless steel brewing vats, pharmaceutical production equipment, and pressure vessels.

Gold fabricating on such a large scale was virtually without precedent for industrial equipment. Handy & Haman, the New York company that supplied the 30 lb. of gold sheet used in the



"Design it better—make it better" has long been the guiding principle at Borg-Warner. In line with this concept of progress, B-W constantly seeks to improve existing products and to develop new ones.

Among the notable products recently introduced by Borg-Warner are a new-type clutch for heavy-duty machines; Cyclocac®, a remarkable new plastic of many uses; a new cement-type building material lighter in weight and with better insulating qualities than concrete or brick; an advanced automotive oil cooler; new pumping equipment for handling liquid oxygen; new pumps for nuclear reactor operations; new gas-fired home heating equipment; new electro-hydraulic servo valves for control systems of aircraft and guided missiles; new axial flow blowers specially designed for aircraft, industrial and mobile applications; and many others.

In addition, special B-W research groups are currently engaged in the development and testing of such important projects as a new type automatic transmission for heavy-duty trucks; a sonic oil well drill; power gear shifting units for off-the-road earth-moving equipment.

In these and other fields Borg-Warner is expanding for the future, applying its special skills and broad experience in research, engineering, production and management to continue benefiting almost every American every day.



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Rockwell Report

by W. F. ROCKWELL, JR.
President
Rockwell Manufacturing Company



ONE OF THE ADVANTAGES of a diversified company such as ours is the economy possible through centralizing certain functions, such as purchasing, which are common to all divisions of the company.

A less obvious cost advantage can result from standardizing various factors entering into the manufacture of what appear to be widely diverse products. In our Central Standards Program, which is a function of our Central Engineering Department, we have concentrated mainly in two areas: materials, and design practices.

Materials standardization is not easy for us because we make so many different kinds and types of products. But results more than justify the considerable study and effort required. Take, for example, a common item such as studs. We had been using, in all our divisions and for all our products, one hundred fifty different sizes and types of studs. That has now been reduced to just twenty-five, with obvious savings both in purchasing and stock handling. The same principle applies to nuts, bolts and other fasteners, bushings, and an almost endless list of hardware items.

Setting standards for design practices also pays off for us. As you know, different engineers use different symbols for dimensioning, finish marks, abbreviations, etc., depending on where they went to school or where they have worked previously. It is easy for one man to misinterpret a drawing made by another man using a different engineering "dialect"—and this can be very costly in time and materials. Through standardizing on symbols, we have reduced almost to zero the chance for this kind of misunderstanding.

We feel that one of the main reasons why our Central Standards Program has been productive is that standards are never issued by edict. They are worked out with the full agreement of each manufacturing division, and the yardstick against which each suggested standard is measured is very simple: Will it *really* lower costs, without lowering quality?

* * *

Automatic remote control of operations in the gas industry is making rapid strides. For example, our Rockwell-Nordstrom valves, with electric or hydraulic operators, can now be arranged to close automatically should a break occur in a gas pipe line. And with the new Rockwell Telepilot, the pressure at any pressure control regulator—even miles away—can be adjusted up or down from a central location.

* * *

In the American Pavilion at the gigantic Paris Fair, the Do-It-Yourself section was completely equipped with our Delta Power Tools. A total of eleven different Delta woodworking and metalworking tools were under power and were demonstrated to thousands of prospective European "do-it-yourself" enthusiasts.

* * *

The prevention of contamination in nuclear processes has made necessary new standards of process and manufacturing quality control. An example is the new "clean room" of our subsidiary, Edward Valves, in which atomic power valves are assembled and tested. Here temperature, humidity and air filtration are so accurately controlled that the room is actually cleaner than a hospital operating room.

One of a series of informal reports on the operations and growth of the

ROCKWELL MANUFACTURING COMPANY
PITTSBURGH 8, PA.

for its customers, suppliers, employees, stockholders and other friends

tank, says it knows of no other gold structure of comparable size. A Handy & Harman engineer told *BUSINESS WEEK* that his company has received a number of inquiries about gold for chemical processing equipment, but when the expense was figured up, the ideas evaporated. The gold used in the LAPRE reactor cost \$14,140.

• **Welding Job**—To be leakproof, the reactor core had to be fabricated from solid material, since it's virtually impossible to gold plate a surface without leaving microscopic pores. The gold sheet, in relatively narrow strips about 1/100 of an inch thick, had to be welded together to make tight joints. The welding problem sent Nooter engineers to the library and on a general search for knowhow among jewelers and other workers in precious metal.

Nooter ended up making the bottle in three parts—a simple cylinder capped at each end by a derby shaped gold bowl. To size the parts after welding, the whole structure was mounted on a mandrel and spun on heavy metalworking lathes. A wooden axe handle, in the hands of a worker, turned out to be the most effective forming tool. Metal tools would have ripped the gold.

After the three parts were complete, they were welded together and the whole structure tested for leakage with a supersensitive helium mass spectrometer—a detector that will sniff out a hole so tiny that it will let pass only one cubic centimeter of gas in 30 years.

Of course, the paper-thin gold shell is not in itself a pressure vessel. It is backed up by a stainless steel tank, weighing about a ton. The gold shell is fitted inside the stainless tank; the working pressure of 750 lb. expands tight against the steel walls. According to a Nooter engineer, it will end up as "tight as a coat of paint."

• **Tubes**—Forty-four gold-covered tubes carry water into the reactor core, where it is heated and discharged as steam. Sealing the tube entries proved one of the toughest jobs on the reactor. Special gold tubular gaskets were made to surround each water tube where it passes through the heavy stainless steel cover.

When the reactor checks out as completely tight, it will go to the University of California Scientific Laboratory at Los Alamos for operational testing. There it will generate up to 2,000 kw. of heat power. The AEC won't generate electricity with it.

The tank promises one odd switch on the alchemists' old dream. After the gold lined tank has operated for a year or two, atomic physicists say, part of its gold lining will have changed to mercury because of the intense bombardment from nuclear particles. **END**



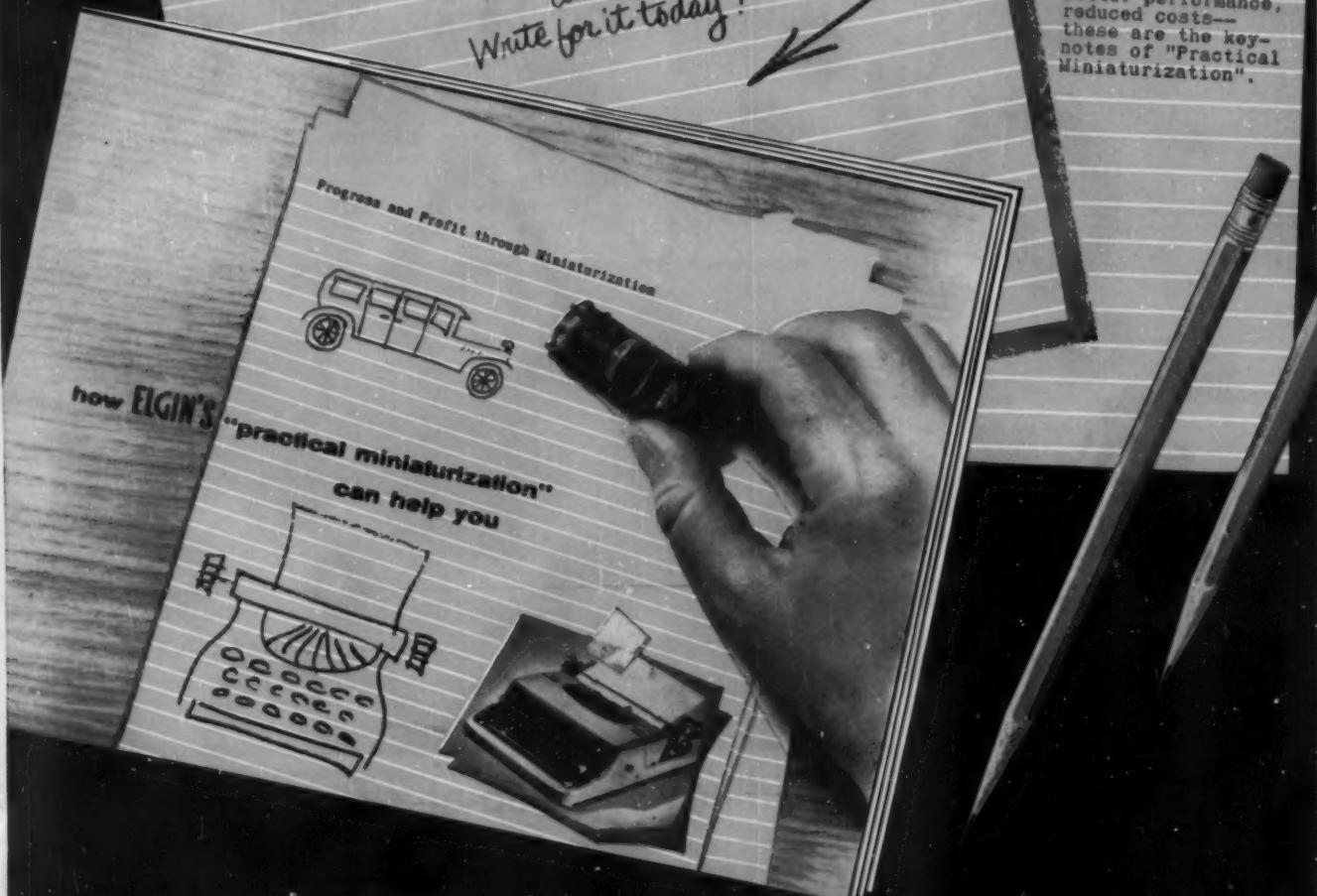
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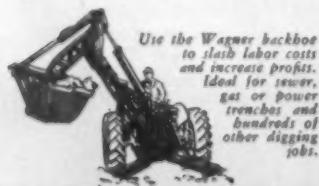
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WAGNER IRON WORKS, 1905 S. 1st St., Dept. 1318
Milwaukee 1, Wis.

Send me complete information on Wagner
Tractor Equipment for a

tractor.
(make)

Name _____

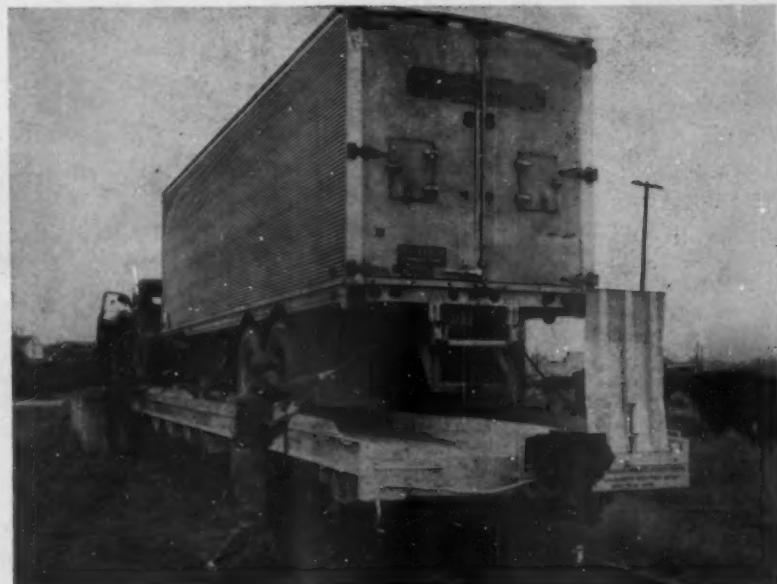
Company _____

Address _____

City _____ State _____

"WAGNER BUILT" MEANS
"BETTER BUILT" FOR OVER 100 YEARS

NEW PRODUCTS



Cutting Piggybacks' Roadblocks

Low tunnels that have blocked piggyback truck-rail shipments on many important runs now may be conquered by "Lodapto," ACF Industries, Inc.'s new, low freight car. Ten inches lower than the standard flatcar and weighing only 52,000 lb. compared to the usual 80,000 lb., the "Lodapto" rides no more than

32 in. above the rail when loaded. The new car is 38 ft. long and features fixed axles, roller bearings, and rubber draft gear. End loading is effected by self-contained bridge plates that ride in a vertical position. The car's lighter weight, says ACF, will mean a lower price tag.



Airlines Try Cup-at-a-Time Coffee

A new machine that makes hot coffee one cup at a time at a push of a button is being installed in planes of American Airlines and other carriers. Manufactured by the Dav-Lo Co., of Los Angeles, the unit holds a reservoir

of filtered water, which is automatically heated and mixed with a liquid coffee concentrate. Press two other buttons and the machine will dispense hot or cold water by running water through either a heater or a container of dry

BETTY FURNESS SAYS:

"No elevator operator... but in this full water-glass test I didn't spill a drop!"



New Westinghouse Elevator Control Ends Annoying "Door-Scare" Forever

Delighted passengers in heavy-traffic buildings report complete confidence in Westinghouse Operatorless Elevators with exclusive new TRAFFIC SENTINEL®.

The last objection to heavy-duty operatorless elevators has been overcome once and for all by exclusive New Westinghouse TRAFFIC SENTINEL. This remarkable elevator door control forever eliminates frightening, irksome, premature door-closing movements which can startle passengers.

Proved By Water Glass Test

New TRAFFIC SENTINEL holds car and corridor doors completely motionless while passengers are entering or leaving.

Gone is any trace of passenger anxiety, worry or "door-scare." TRAFFIC SENTINEL with its "electronic hand" is far more efficient than the most highly trained operator.

There is positively no movement of the open doors—a full glass of water held next to them will not spill a drop.

Invisible Beams Control Doors

Invisible infra-red beams "watch" passenger movement and synchronize door closings automatically according to traffic flow. They adjust door-open time differently for

passengers entering and leaving the car and close doors only after the last passenger passes safely through.

Cuts Door-Open Time

TRAFFIC SENTINEL not only inspires complete confidence among passengers but speeds traffic movement by eliminating all unnecessary door-open time.

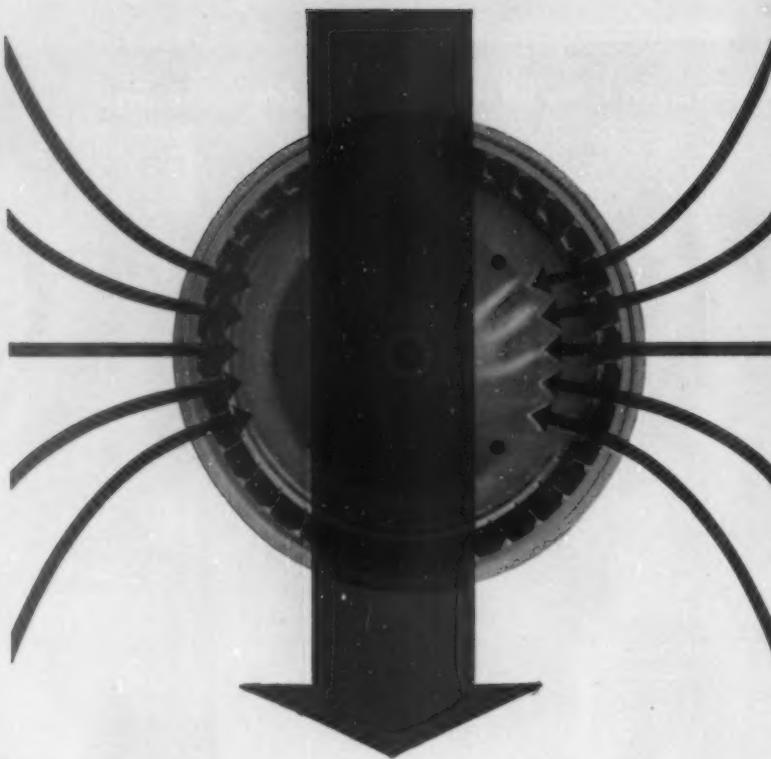
If you are thinking of new building or modernization, we'd like to show you TRAFFIC SENTINEL and discuss elevatoring in general. Call our nearest office today.

Westinghouse Elevators

WATCH WESTINGHOUSE!

COVER THE CONVENTIONS ON CBS TV AND RADIO

J-98717A



THE BIG WIND

Now available nationally: a complete line of large-diameter high-capacity Center-Lock Airotors designed to meet the most rugged requirements of today's major producers of air-moving equipment. The advanced engineering behind this new Torrington development is responsible for half a million design variations of air impellers contributing to the whirlwind success of products valued at nearly 4 billion dollars a year... Quite a breeze!



THE
TORRINGTON
 MANUFACTURING COMPANY
 TORRINGTON, CONNECTICUT
 VAN NUYS, CALIFORNIA • OAKVILLE, ONTARIO

ice. It can be adapted to dispense soups and soft drinks as well. Dav-Lo is now beginning to install the machine in industrial plants.



Smudgeless Change

Not even white-gloved hands pick up a smudge when changing "Twin Pak" typewriter ribbons in Royal Typewriter Co.'s 1957 portables. The ribbon comes wound on two plastic covered spools. The typist's hands don't touch the ribbon itself when inserting the spools in a new style carrier. Royal's Quiet DeLuxe 1957 model typewriter is priced at \$122.50; the "Twin Pak" ribbons of Egyptian cotton sell at \$1.85. They'll be in national distribution by early September.

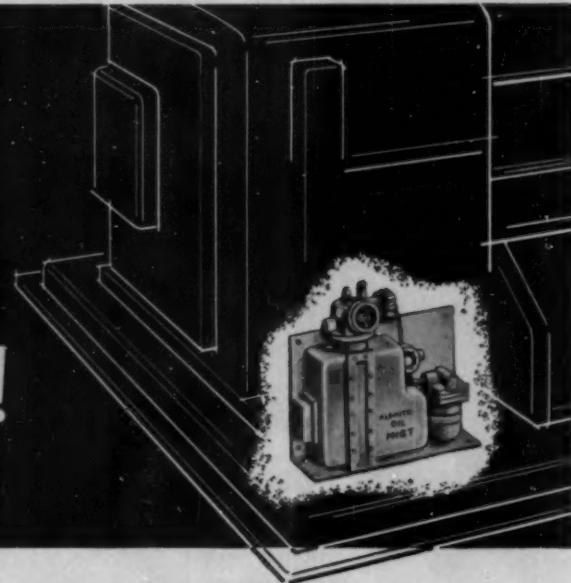
NEW PRODUCTS BRIEFS

Information is stored and sorted in a new device developed by the National Bureau of Standards for government use. Information-filled microfilm frames are stored 10,000 to a sheet. When data are needed, requests are fed in on a perforated tape. The machine then selects the frames in the desired order and issues enlarged reprints.

Magic messages for mail advertising are possible with a new invisible printing ink suitable for bond and colored papers. Made by A. August Tiger of New York, the ink is visible when wiped damp, disappears again when it dries. Tiger also markets invisible ink for writing, in \$1 and \$2 bottles.

All graphic arts processes can now use one interchangeable gray contact screen to break up continuous tone copy for lithography and photo engraving. Before, different screens were needed for the various techniques. Caprock Developments, New York, makes the "Universal" in a full range of sizes and rulings. Price for an 11-in. x 14-in. screen with 85 rulings per inch is \$44.23.

save up to 90%
on
lubricating costs!



ALEMITE OIL-MIST AUTOMATIC LUBRICATION

**multiplies bearing life...cuts product spoilage
...boosts machine output in almost every industry!**

Alemite Oil-Mist Automatic Lubrication brings remarkable savings... in lubricants, man-hours, bearing life, and decreased product spoilage.

Alemite Oil-Mist atomizes oil into mist—distributes it through tubing to bearings—bathes all bearing surfaces with a cool film of clean oil. Maintains uniform oil film on plain and anti-friction bearings, gears and chains—despite

variations in load, temperature or speed. Amazingly simple, continuous and fully automatic... Alemite Oil-Mist eliminates the waste and uncertainties of the "human element" in lubrication.

Let us show you how Alemite Oil-Mist provides more efficient, foolproof lubrication, at lower cost! Mail coupon below for a graphic demonstration!

8 Advantages of the ALEMITE OIL-MIST System

1. **Continuous Lubrication**—Constantly deposits fresh, clean film of oil on all surfaces of all bearings in the system.
2. **Fully Automatic Lubrication**—Can start and stop with operation of machine switch.
3. **Elimination of Guesswork**—No bearing can be over-looked, nor over-lubricated! Every bearing picks up only as much Oil-Mist as it needs.
4. **Reduction of Bearing Temperatures**—Acts as bearing coolant, can lower bearing temperatures as much as 20° F.
5. **Reduction of Types of Oil**—Reduces number of oils that must be stocked, handled, and applied.
6. **Elimination of Downtime**—All bearings in the system are constantly lubricated while machines continue to operate.
7. **Extension of Bearing Life**—Multiplies bearing life many times. Life of grinding machine bearings has been extended from 400 to 7,000 hours!
8. **As High As 90% Less Oil Consumption**—Alemite Oil-Mist usually consumes about $\frac{1}{10}$ the amount consumed by any other oiling method!

Alemite Oil-Mist Lubricates ALL Types of Mechanisms



Anti-friction
Bearings



Plain
Bearings



Chain



Gear



Gear
Cases



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A Product of STEWART-WARNER CORPORATION



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Please send me a FREE copy of your new and complete Oil-Mist catalog.

Please have your Alemite Lubrication Representative arrange a no-obligation demonstration.

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Title.....

Company.....

Street.....

City.....

State.....

Sign of considerate
thrifty management



Thoughtfulness for the personal sanitation needs of employees, customers, visitors is always good business. Sanitor dispensers provide individual toilet tissue seat covers at a cost of only $\frac{1}{2}$ c each — much cheaper and neater than makeshift methods. Savings run to several dollars a stall per year plus lowered rest room cleaning costs.

Write for samples and complete information.



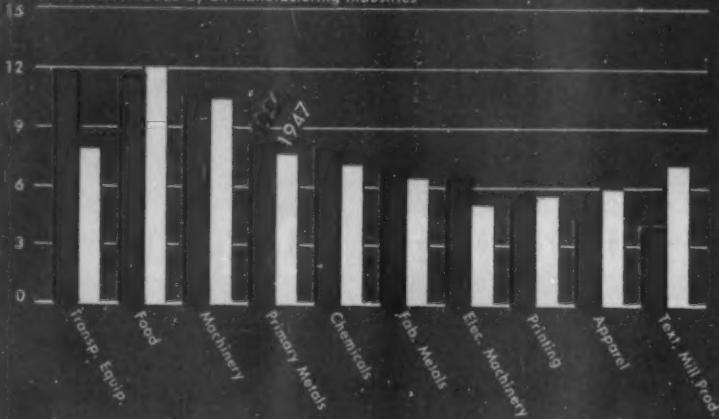
TOILET TISSUE SEAT COVERS
A good idea for
plant and office

SANITOR MFG. CO.
Kalamazoo, Michigan

CHARTS OF THE WEEK

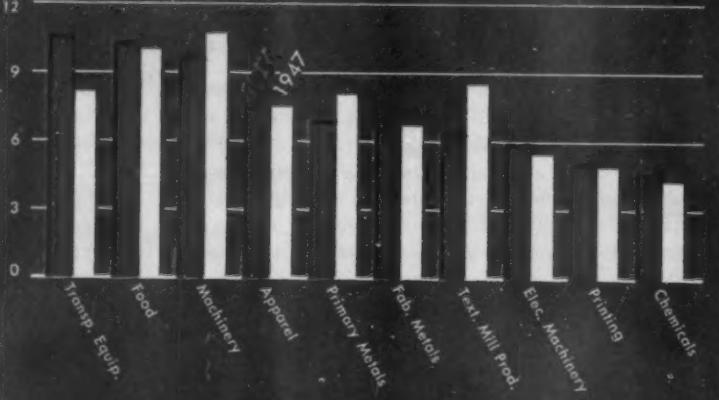
Value Added by Manufacturing

Percent of value added by all manufacturing industries



Manufacturing Employment

Percent of all manufacturing employees



Data: Dept. of Commerce, Bureau of the Census.

© BUSINESS WEEK

The Ratios Are Shifting

There have been marked shifts in the proportion of the value added — the difference between the cost of raw materials and the value of the shipped product — among the various segments of manufacturing between 1947 and 1954, according to preliminary figures of the Census of Manufacturers.

Among the top 10, transportation equipment accounted for 11.9% of all value added in 1954, compared with 7.9% in 1947. In the previous census, the largest share (12.1%) was contributed by food products, which dropped

to 11.6% in 1954. Primary metals, chemicals, and electrical machinery showed increases between 1947 and 1954. Textile mill products, apparel, and printing and publishing declined.

Employment didn't follow the same pattern, although transportation equipment had the largest number of employees in 1954. Machinery manufacturing slipped from 10.8% of total manufacturing employment in 1947 to 9.8% in 1954 — from first to third place. Textile mill products dropped from 7.2% in 1947 to 4% in 1947.

**NEW
WORK-
ORGANIZER
DESKS**
for the modern office

Shaw-Walker Work-Organizer Desks are guaranteed to help you get more done. The drawers organize everything from paper clips to records — put what's needed most in easiest position for quickest use.

But you must see these desks to experience the numerous work-saving economies they can effect for you. Now on display in 416 cities.



SHAW-WALKER

MUSKEGON 93, MICHIGAN
Largest Exclusive Makers of Office Equipment
Representatives Everywhere



Easy does it. At tagging station on Alaskan beach, a member of U. S. Fish & Wildlife Service steadies a three-month-old seal pup while companion attaches a corrosion-resisting Monel

alloy tag to left flipper. Tagging permits tracing of seal migrations to various parts of the world, aids in scientific studies of growth, mortality, homing instinct and other characteristics.

Tagged...for future reference

This little seal may be planning a trip far from his Alaskan home. But of course he can't tell the U.S. Fish & Wildlife Service what his destination is!

As they're very much interested in finding out, they tag him.

Migratory habits of seals have been under observance for many years. In all that time, there was one thing that always stumped the Wildlife Service—marking a seal so that he *stayed* marked.

They tried everything they could think of. Clipping...shearing...branding...painting. Nothing worked. When

they tried metal tags, that brought up still another problem.

What metal would stand the abuse?

What would resist corrosion from salt water? What would be hard enough to resist abrasion when seals clamber over rocks and sand?

Finally, a metal was found—Monel* nickel-copper alloy!

With Monel, it makes no difference if seals frolic in the salty sea. Or flip-flop around on shore. Or travel from Alaska to Japan, as many of them have! Monel alloy tags proved rugged enough

to take this punishment. Some, in fact, remained in good condition *after 12 years on a seal's flipper*.

Do you have a problem involving metals? One in which corrosion, abrasion, high or low temperatures, stresses, or fatigue are causing trouble? Talk it over with us. We may be able to help you find out how Monel or one of more than 50 other Inco Nickel Alloys can overcome your difficulty. No obligation, of course. So let's get together on it soon. The International Nickel Company, Inc., 67 Wall St., New York 5, N.Y.

*Registered Trademark



INTERNATIONAL NICKEL
Nickel Alloys Perform Better, Longer



GENERAL MOTORS LEADS THE WAY—



*You are assured of
ample electric power—*

*in utility vehicles
with Delco-Remy special
electrical equipment*

Delco-Remy produces lines of generators designed to meet the *heavy-duty* or the *extra-duty* electrical needs of the wide variety of gasoline and Diesel powered vehicles and equipment used by public utilities—including those with two-way radio, floodlights, or other special units.

Delco-Remy 6- and 12-volt A.C.-D.C. charging systems, for example, are the answer to *extra-heavy* electrical demands. Outputs at engine-idle are unexcelled and maximum outputs up to 180 amperes are available at higher engine speeds. These higher outputs not only supply ample current for a vehicle's regular needs but also are available to pick up discharged batteries quickly in emergencies.

Where electrical loads are heavy but not excessive, Delco-Remy *extra-output* D.C. generators with matching regulators are right for the job.

Additional units in the special Delco-Remy line include coils and other ignition components as well as rugged, new, longer life Delco batteries which supply the power to spin big engines faster and so assure more dependable starting in any weather.

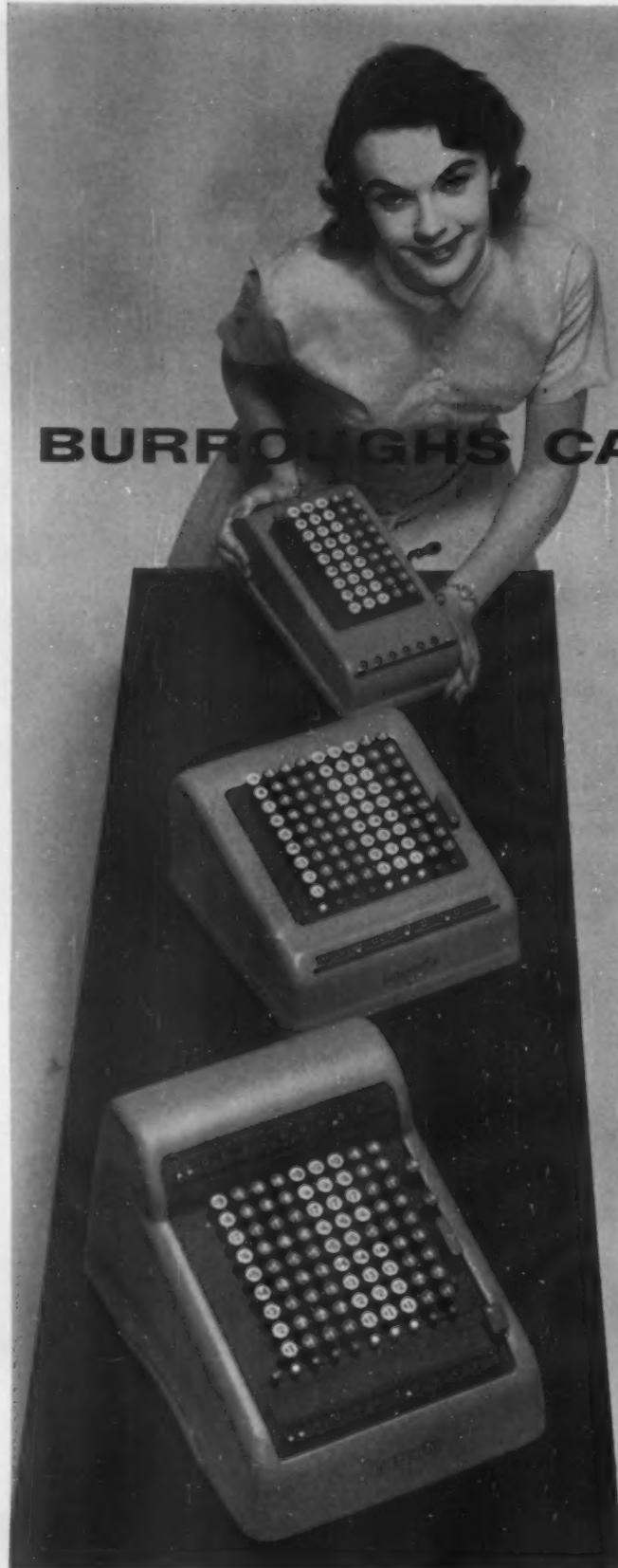
Whether you're modernizing older vehicles or ordering new ones, be sure you specify the Delco-Remy electrical equipment designed for your needs.

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Delco-Remy

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Take your choice of the exact machine for you from this new Burroughs Calculator line! Hand-operated portable. Key-driven single-total Simplex—manual or electric—with answers instantaneous. And the electric two-total Duplex masterpiece with Memory Dial for automatic grand or net totals; no recapping.

Here's *live* key action, *precision-built* to race through volume calculating jobs so much faster, easier. Press a key, see the full amount register instantly. Maximum production, maximum savings are both yours. New two-tone coloring, too, and ultra hush-hush operation.

Free demonstration? Just call our nearest branch office. Or write direct to Burroughs Corporation, Detroit 32, Michigan.

"Burroughs" is a Registered Trademark



FINANCE

BOND RATINGS: They Set the Price Pace

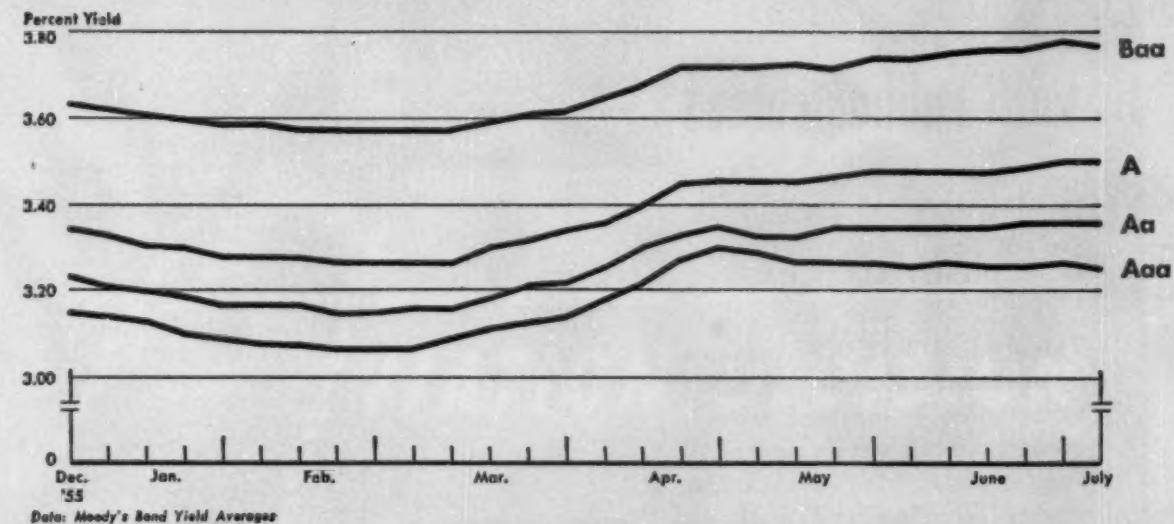
In the new issues market . . .

Even among the higher-rated bonds, the actual rating can make a big difference in the offering price . . .

. . . and the gap between the top rated bonds and lower-rated issues can be plenty wide.

Issuer	Amount (In Date Millions)		Coupon	Yield at offering price	RATING		
	2/15	\$10	3 1/4	3.20	Moody's	Poor's	Fitch's
Central Pwr. & Lt.	2/15	\$10	3 1/4	3.20	A	A	A
Dallas Pwr. & Lt.	2/16	\$10	3 1/8	3.09	Aaa	A1+	AAA
Texas Elec. Serv.	2/29	\$10	3 1/4	3.15	Aa	A1	AA
Southwestern Pub. Serv.	2/29	\$10	3.35	3.36	A	A	A
Niagara Mohawk Pwr.	5/9	\$30	3%	3.55	Aa	A1	AA
Calif. Oregon Pwr.	5/9	\$16	3%	3.80	A	A	A
Consol. Edison	5/23	\$30	3%	3.55	Aa	AT+	AAA
Lockheed Aircraft	5/23	\$30	4 1/2	4.50	Baa	B1+	BBB
Southern Union Gas	6/7	\$10	4 1/4	4.20	Baa	B1+	BBB
Indianapolis Pwr. & Lt.	6/8	\$10	3%	3.52	Aa	A1	A

. . . and in the trading market



Who Says That Bond Is AAA?

One day last spring, two public utility companies went into the mortgage bond market. Niagara Mohawk Power floated a \$30-million issue with a 3.625% coupon; California Oregon Power sold a \$16-million issue with a 3.875% coupon.

The difference in the interest rate that these companies had to pay came largely from the grading of the issues by Moody's Investors Service, Standard

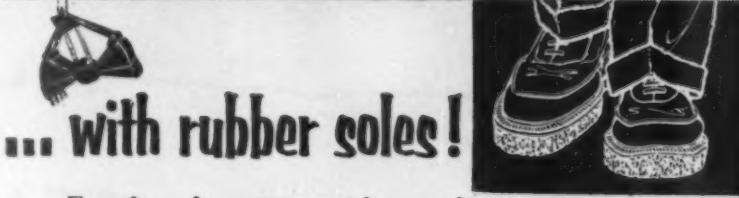
& Poor's Corp., and Fitch Publishing Co.—as the table above shows, they all rated Niagara Mohawk one notch above California Oregon. And that meant the lower-rated company had to pay out an extra one-quarter of 1% in interest—a difference of \$40,000 a year on the \$16-million issue.

Corporate treasurers know how these long-term borrowing costs can add up, and they wince at every fraction of

1% that's tacked onto interest costs. That's why a treasurer who recently aired his grievances about the bond market placed "the tyranny of bond ratings" near the head of his list.

• **But Good**—This treasurer quickly added that he thought ratings were "absolutely necessary and generally quite fair." It was just that, like many other treasurers down through the years, he had been obliged to pay more

NOW 60 TON CRANES..



... with rubber soles!

Ever long for a crane with rugged lifting power **PLUS** mobility? Now you can have it in the new **BROWNHOIST DIESEL ELECTRIC WAGON CRANE**!

This new **BROWNHOIST**, operated by one man, is mounted on heavy rubber tires. It sure gets around, even in difficult terrain and hard-to-get-at places. What's more, its got power steering and built-in **BROWNHOIST** know-how! Available in capacities from 25 to 60 tons.

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representative or write us for
full information.



BROWNHOIST

for his money than he had figured. The cold-eyed analysts in the rating agencies hadn't been willing to appraise his company as highly as he did.

Because of their long experience in evaluating bond issues Moody's, Standard & Poor's, and Fitch have a lot to say about the interest rates and yield to investors of bond issues that amounted in 1955 to \$4-billion corporates and \$6-billion long-term state and municipals.

The services are often accused nowadays of underrating corporate performance, but their conservatism is just as often pointed out as a bulwark of their reputation. Even they were burned in the 1920s by the infectious fever of a boom-crazy economy. In the unhappy times that followed, Moody's got altogether out of the business of rating common stocks, and Standard & Poor's stayed out for a while.

• **Unheeded**—Ironically, as long as times were good between wars, the ratings—whether of stocks or bonds—didn't get much attention. In the 1920s, as one veteran of the bond-rating game recalls, "nobody wanted to know the basic condition of an issue—just how high it would go."

The rating services gained tremendous stature after the crash. Among the businesses hit hardest in the early '30s were the commercial banks. Small town banks—directed by local doctors, hardware merchants, and druggists—had often gone hog-wild in the bond market, loading up with paper that turned out to be virtually worthless.

• **Well Entrenched**—During the mid-1930s, bank examiners more and more urged bankers to buy only the bonds that were given high ratings by the three recognized agencies. In 1938, the recommendation got the force of law in new regulations issued jointly by the Federal Deposit Insurance Corp., the Comptroller of the Currency, the Board of Governors of the Federal Reserve System, and the Executive Committee of the National Assn. of Supervisors of State Banks.

The regulations included a section forbidding a bank to invest in any bond that the recognized agencies rated below a specified level. This section also established a three-company oligopoly by recognizing ratings only by services that have been in existence for at least 10 years. Thus, anyone who started a new rating service today would have to wait 10 years before the banks would have to pay any attention to his pronouncements.

• **Institutions**—The banks heed the rating agencies because they must, under regulation. But many institutions and individual investors also follow the ratings simply because they find it has paid to do so.

Of course, many of the institutions already have their own staffs of analysts,

Looking
to the Future!

Here's what Weatherhead is doing to meet increasing demands for creative engineering and precision aviation parts.

Sales and engineering operations of the Aviation Division were recently transferred from Antwerp, Ohio to Cleveland, where it functions as an integrated operation, an integral part of the organization producing high quality parts since 1919. This consolidated company location offers the advantage of better and brings additional engineering skills and broader facilities to the production of industry standards.

As already significant increases in research and development have recently accelerated through the addition of facilities and expansion of the plant, modern shops and modern tool types will support this vital program.

Remember, it's to your advantage to specify Weatherhead products.

WEATHERHEAD

AVIATION DIVISION

PRECISION PRODUCTS

ALUMINUM CYLINDERS
COMPRESSORS
MS 487 FLARELESS TUBE FITTINGS
HOSE, HOSE ENDS, HOSE ASSEMBLIES
TEFLON HOSE ASSEMBLIES
AN TUBE FITTINGS
AUTOMATE SWIVEL JOINTS
AIRCRAFT ENGINE PARTS
SELF-SEALING COUPLINGS
JET NOZZLES
CORED FORGINGS: TITANIUM, ALUMINUM, BRASS
PRECISION FORGINGS: ALUMINUM, BRASS, STEEL



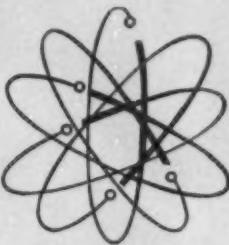
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Ideas for tomorrow's products — and research leading to improvements in today's products and processes — are among the tangible benefits available to industry in North Carolina.

Three famed educational institutions combine to form a research center that is attracting top scientists and graduating increasing numbers of science and engineering students. Separately and cooperatively, these great schools carry on major projects for industry and government.

North Carolina research equipment and facilities include the first independently-owned, unclassified nuclear reactor. Scientists and research engineers at the universities are available to consult with industry. Trained personnel is provided by increasing numbers of students majoring in the modern sciences.

Here, in this uncrowded area and unhurried atmosphere, already distinguished for its research projects, laboratories are welcomed. More companies are invited, too, to share the present research facilities and other important advantages of plant locations in North Carolina.

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Location
Factors"—
Send for a
copy today.

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William P. Saunders, Director

NORTH CAROLINA
YEAR 'ROUND MID-SOUTH

and you'll find rating service people who expect that the value of their own appraisals will diminish as institutions further dominate the corporate bond market.

"They will have big staffs and may not really need our service," one executive comments. "But, of course, the banks are dependent on us because they can only buy bonds of a certain rating. And many of the institutions, even where they have complete investment staffs, like our ratings as a double-check on their own work."

• **Going About It**—Rating a new bond offering starts with collecting records of all kinds—annual reports, prospectuses, the services' own data on the company, reports of its staff's field trips.

Besides devouring every scrap of statistical material available, the services try to get the underwriters and officials of the issuing company into their Wall Street area offices for a no-holds-barred interview. These talks are considered all-important by both the services and the underwriters, but corporate officials sometimes get a little uneasy at some of the soul-baring questions shot at them.

Underwriters, having a different slant on ratings than raters themselves ("we may be a bit less objective," says one investment banker modestly), have been known to apply pressure to get a good rate for their client-companies. However, this is generally considered bad form. It may even cause the raters to harden their hearts more than usual.

"The guy who bounces into our session and says 'Well, fellas, this looks like a double-A' has just cut his own throat," says one hardbitten rater.

• **Hard to Digest**—The assembled data is winnowed by a top officer of the service—usually a man who, like Fitch's John Becker, has had many years of experience in the bond business—along with an industry analyst and a company analyst who have gone over the same ground. They arrive at a rating, and that is usually that. As the years go by, seldom are ratings changed on bonds in the top four categories.

This aversion to change annoys many Wall Street bankers, but the raters say that constant revision, "undermines the investor's faith in the ratings." Moody's tries to make revisions unnecessary by peering into the future—if it looks as if the bonds might someday sell as Baa instead of A bonds, Moody's rates them Baa despite the current position of the company.

• **Factors**—Although they pay strict attention to statistical yardsticks such as how many times earnings cover debt, ratios of sales to inventory, total debt to net plant, and depreciation to property, the raters are all quick to say that there is no formula by which you can rate a bond.

For instance, Fitch's notes not only

No...
the IBM Electric
can't open
the mail
but...



...it will turn out the world's handsomest replies
and save office time—energy—and money!



The IBM Electric is available in
7 exciting colors. Tropic Tan, Cascade Green
and Dove Grey (top three) at no extra cost.

No run-of-the-mail correspondence
from your office when you have the
IBM Electric . . . with an IBM you get
the world's most beautiful typing. No
more uneven, untidy letters—no typist
can vary that uniform IBM typing.

Saves energy and time—electricity does
the work! The IBM requires 95.4% less
"finger-effort" than a manual type-

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time-saving aids greatly reduce typing
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Saves money because the IBM helps
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CONVAIR'S 440 commercial transports contain Kawneer-made lightweight and extra-sturdy, flat honeycomb panels as flooring and access doors.

Kawneer has designed and manufactured
attractively functional products for American buildings
during the last 50 years. In the appliance and aircraft industries, too,
Kawneer is known for its feel for precision, cost and delivery.

Accept nothing less than

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Atlanta, Ga., Brooklyn, N.Y., Chicago, Ill., Cynthiana, Ky., Detroit, Mich., Memphis, Tenn., Oakland, Cal., Portland, Ore., Seattle, Wash., St. Louis, Mo.,
Toronto, Ont., Havana, Cuba

the character of the industry—how cyclical it is, how much competition there is, how susceptible to rapid technological change it is—but also such intangibles as “the combined caution and progressiveness of a company’s policies, and its labor relations.”

“Given underlying stability of the industry,” says Fitch’s, “a strong rating may reflect directly the sustained wisdom of policy of an existing management, or a more speculative grade may be traceable to changing control or unsound or fluctuating policy.”

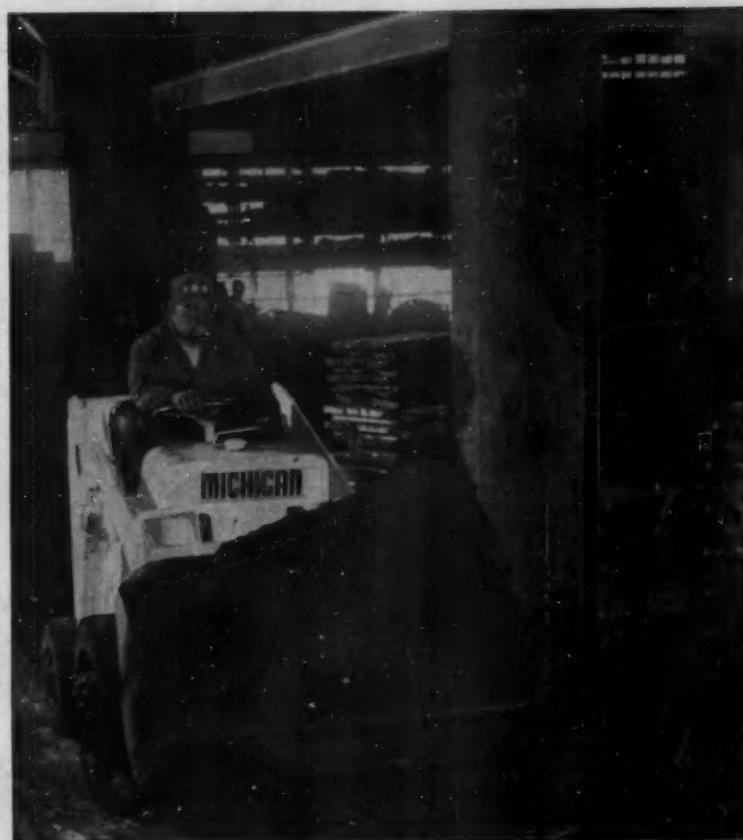
The evaluation of these intangibles, and the assignment of weight to them, is done in the minds of such men as E. L. Vogelius of Moody’s and Louis Brand of Standard & Poor’s.

These veterans of 25 years and more in the securities business are the balance-wheels in each company’s rating setup. Frequently they come to a session cold, listen to their other analysts hashing out the various factors, and let the rate be decided by the firmness of the conviction of the analyst holding out for that rate. The top men arbitrate, occasionally overrule a rating. They are quick to admit that mistakes have been made but, perhaps remembering the ’20s, they most often err on the side of caution.

Moody’s, for instance, makes this revealing statement about its ratings: “Since ratings involve a judgment about the future on the one hand, and since they are used by investors as a means of protection, on the other, the effort is made when assigning ratings, to look at the ‘worst’ potentialities in the ‘visible’ future rather than solely at the past record and the status of the present. They are not statistical ratings, but an appraisal of long-term risks, such as appraisal giving recognition to many non-statistical factors.”

• **Interpreting—** Equal ratings don’t always mean the two companies are equally sound today. Besides all the statistical data—and intangibles such as the “sustained wisdom of management”—raters consider how dependent a company is on defense contracts, and whether the company is a one-man operation or run by a management team. A one-man company almost always draws a lower rating.

Because of their reliance on ratings, investors are prone to “overrate the ratings,” and the rating services themselves are most sensitive about this. Fitch’s points out: “Ratings must not be regarded as specific recommendations nor as forecasts of market movements, but as direct appraisals of investment status in relative terms.” Yet the ratings have become so commanding that investors “think a top-rated name should always borrow from banks at the prime rate, and its bonds shouldn’t fluctuate in price.” **END**



Michigan Model 12B handles 300 tons per day . . .

The bonus in the bucket pays for this machine fast!

Take a close look at the photograph above—an action shot of a MICHIGAN Model 12B Tractor Shovel handling sand at a Chicago foundry. For this operation, the MICHIGAN was purchased to replace another loader of the same rated capacity. But the MICHIGAN moves substantially more tonnage than the other machine—approximately 300 tons of sand per day. The photo shows how the load is heaped-up well above the 15 cu. ft. capacity of the MICHIGAN bucket. This “bonus” tonnage in the bucket pays for the MICHIGAN fast.

More power to dig. With a 20 percent margin of weight and power over most machines of its rated capacity, the MICHIGAN digs its way into tough material where other

machines just spin their wheels. Low-level bucket action enables the MICHIGAN operator to carry the load low, with good visibility and safe center of gravity. Clark’s exclusive power-shift transmission makes all shifts instantly—high, low or reverse—saves vital seconds on every cycle. This combination of features enables the MICHIGAN to dig bigger loads and move them faster.

Write for demonstration. Don’t buy bulk handling equipment until you’ve seen the MICHIGAN 12B in your plant. No other machine can match the 12B’s combination of features or the amount of work it will produce. Clip the coupon to your letterhead to arrange to see it; this machine simply invites your comparison!

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Guaranty Trust Company Develops New "Pooled" Funds Plan for Employee-Benefit Trusts

Companies with pension, profit-sharing, or other employee-benefit trust funds can now select pooled trust funds with investment program to suit their needs.

A new kind of employee-benefit trust fund arrangement, established recently by Guaranty, makes it possible for companies desiring to invest in pooled funds to achieve greater diversification of investments than ever before.

Unlike many other pooled fund arrangements, the Guaranty plan does not "freeze" all participating trusts into a single diversification program. Rather, it is made up of two "commingled" funds: the first invests only in common or capital stocks, the second in investments other than common or capital stocks.

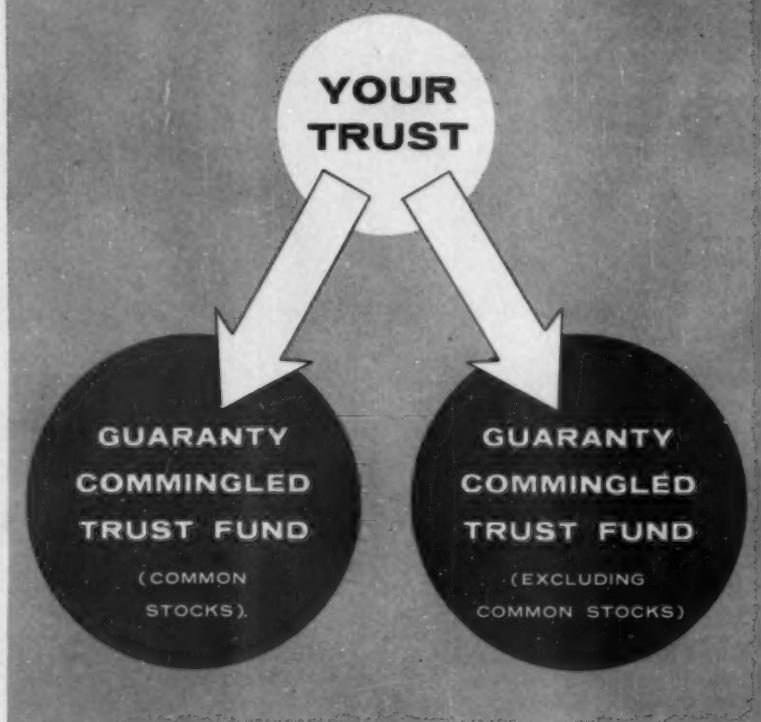
Here's how it works:

- The investment policy for each participating trust is determined by Guaranty after consultation with officers or directors of the corporation—or the company may itself fix the investment policy. Within the scope of the policy established, the proportion of the participating fund to be invested through the medium of each of the Commingled Funds is then determined.
- The proportion of the fund invested through each of the two commingled trusts is subject to revision to meet changing economic conditions.
- There is no maximum dollar limit on the size of the individual trust that may participate.
- A trust may invest through either or both of the funds.
- Participation is limited to employee-benefit trusts of which Guaranty is sole trustee, which qualify under the Internal Revenue Code and which specifically authorize participation.

Guaranty Trust Company is trustee of both Commingled Funds and is responsible for their operation and for the selection of investments held in them.

Each of the Commingled Funds will hold many issues of securities, some of which, because of their size, could not

INVESTMENT PROGRAMS DIVERSIFIED TO FIT THE NEEDS OF EMPLOYEE-BENEFIT TRUSTS



otherwise be readily included in the investment portfolio of an individual participating trust. Every dollar that an employee-benefit trust invests through the medium of a commingled fund is, in effect, "spread" among all the investments of that fund.

The participating trusts, therefore, no matter of what size, obtain all the investment advantages inherent in a very large fund.

If you would like to have more details regarding these funds, write on your business letterhead for a complimentary copy of "Two Commingled Funds for Employee Benefit Trusts." Address Dept. BW-3.



GUARANTY TRUST COMPANY OF NEW YORK

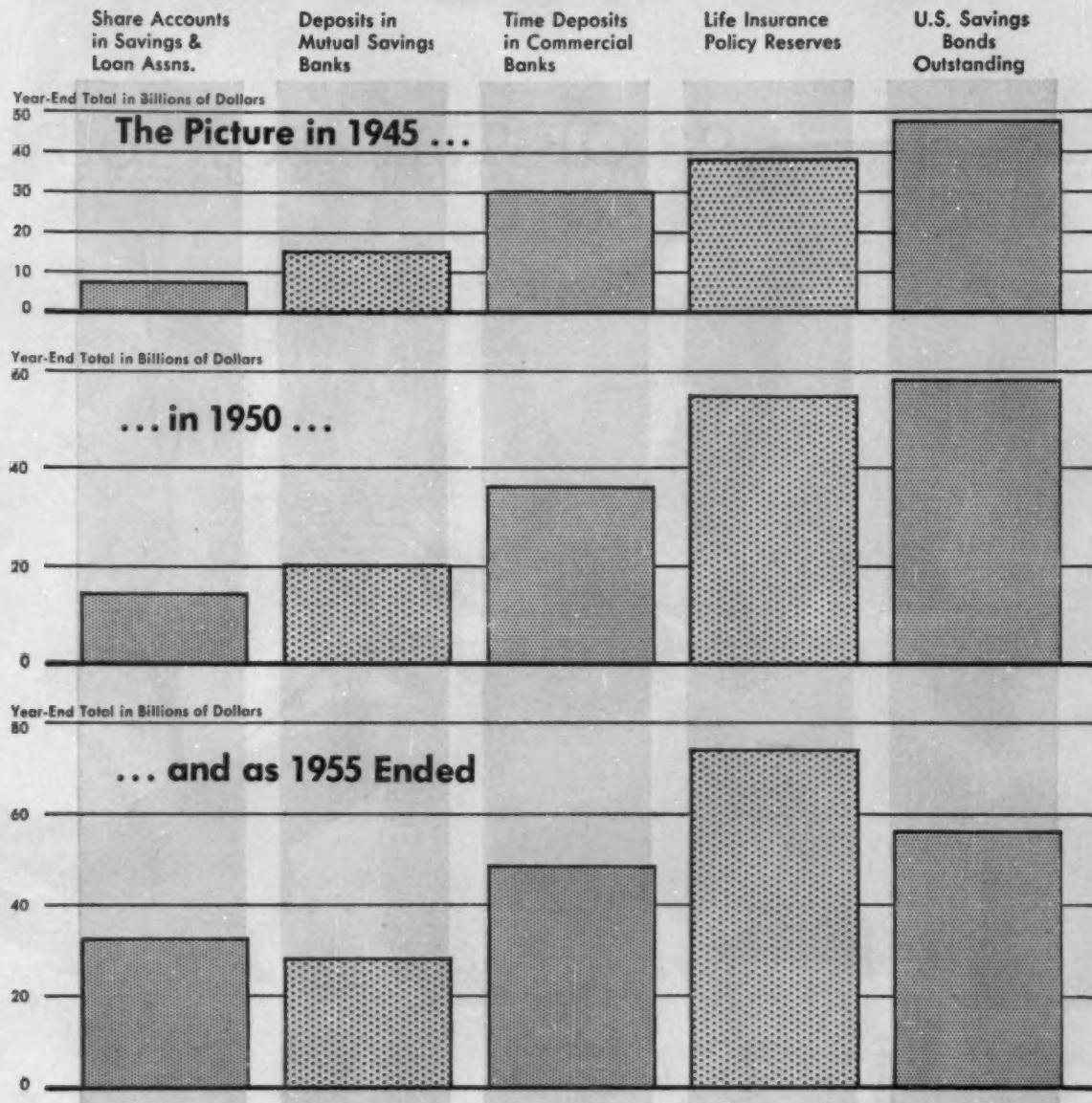


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The Postwar Fight for Savings:



Data: Home Loan Bank Board, Federal Reserve Board, Institute of Life Insurance.

S&Ls Are the Fast Gainers

Ever since World War II, each giant of the savings business has been fighting grimly to increase its share of the vast sums that the public has been stuffing into its collective sock. And right now the savings and loan associations, originally mere outsiders, are making the most impressive gains in terms of dollars entrapped.

The chart above shows the relative standings of the so-called institutional

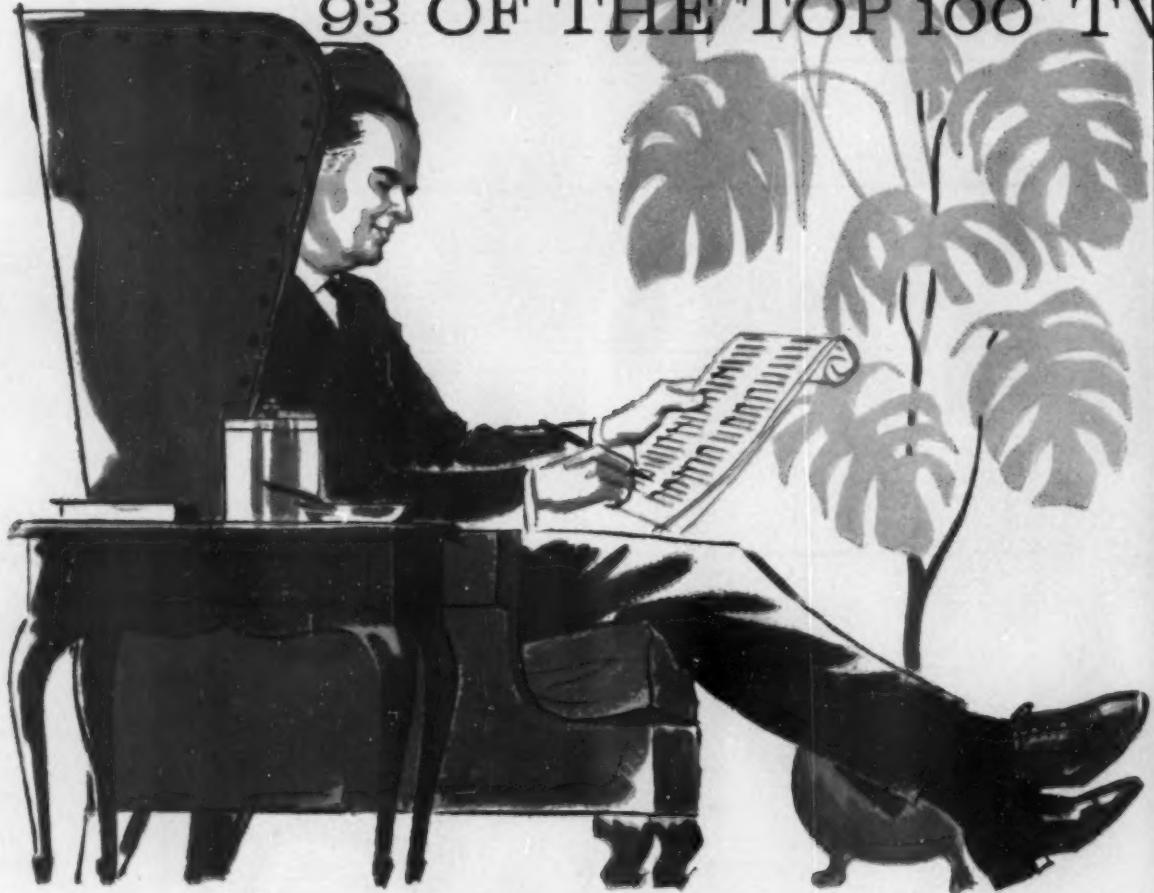
savings—life company reserves, time and savings deposits in both commercial and mutual savings banks, and the S&L share accounts.

• **Rate of Gain**—For the whole 1946-1955 period, public investment in the S&Ls rose an annual 15.9%, outsprinting the life companies' 6.7%, the mutual savings deposits' 6.4%, and the 5% of the time deposits in commercial banks. Expressed in dollars, the S&Ls'

gain for the stretch was \$24.9-billion, which carried them past the mutual savings banks and into a position of more formidable competition with other institutional rivals. In 1946, S&Ls had a mere 8% of all institutional savings; at the end of 1955, they had 18%.

If present trends project into the future, the S&Ls could achieve an even strong competitive position. For, in 1951-1955, the S&L showed a sharply

93 OF THE TOP 100* TV

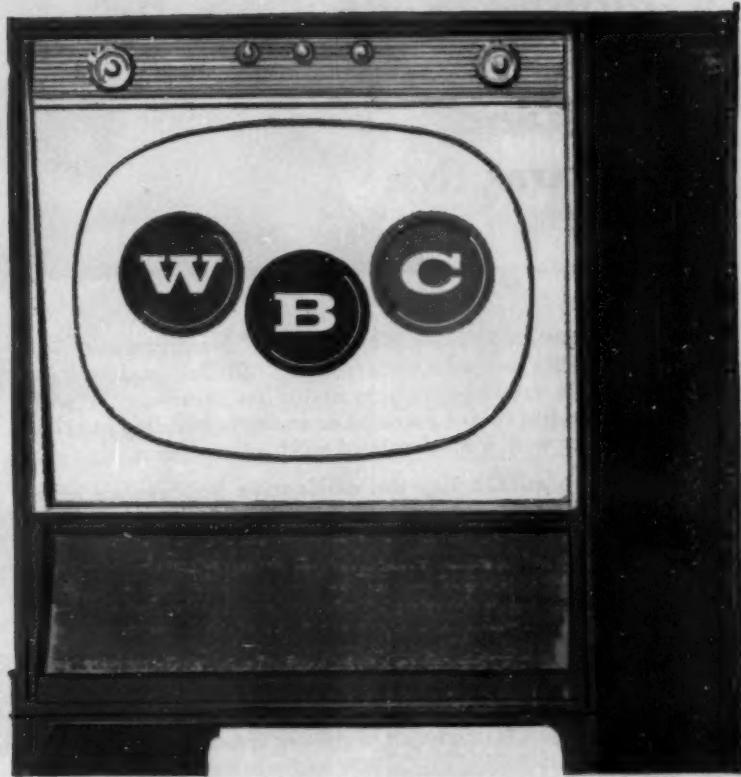


***TvB First Quarter Report, '56:** ✓ Procter & Gamble ✓ Brown & Williamson ✓ Sterling Drug ✓ General Food ✓ Kellogg ✓ Miles Labs ✓ Colgate-Palmolive ✓ Philip Morris ✓ National Biscuit ✓ General Motors ✓ Bulova Watch ✓ Analist ✓ American Tel. & Tel. ✓ Liggett & Myers ✓ Carter Products ✓ Ford Motor ✓ Robert Hall Clothes ✓ Charles Antell ✓ Minute Maid ✓ Continental Baking ✓ Block Drug ✓ Warner-Lambert Phar. ✓ Helaine Seager ✓ Peter Paul ✓ Fla. Citrus Comm. ✓ Grove Labs ✓ Coca-Cola ✓ Harold F. Ritchie ✓ Borden ✓ Nestle ✓ Eso Standard Oil —J. A. Folger ✓ Toni ✓ Campbell Soup ✓ R. J. Reynolds ✓ Chrysler ✓ Chesebrough-Ponds ✓ Leve Brothers ✓ Northern Paper Mills ✓ B. T. Babbitt ✓ P. Balfantine & Sons ✓ Corn Products Refining ✓ Benrus Watch ✓ Tea Council of U.S.A. ✓ Hills Bros. Coffee ✓ Thomas Leeming ✓ Vick Chemical —Piels Bros. —Better Living Enterpr. ✓ Stokely-Van Camp ✓ E. & J. Gallo Winery ✓ Bristol-Myers ✓ Reader's Digest Assoc. —Falstaff Brewing ✓ Pepsi-Cola ✓ Sales Builders ✓ Seven-Up ✓ Wildroot ✓ Salada Tea ✓ Tafo Dist. ✓ Best Foods ✓ Wesson Oil & Snow Drift ✓ RCA ✓ Armour ✓ H. J. Heinz ✓ Anheuser-Busch ✓ Shell Oil ✓ American Home Food

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accelerated relative gain—increasing at an annual 18.2%, compared with 7.2% for mutual savings, 6% for life reserves, and 4.6% for time deposits.

Up to now, the mutual savings banks have been the big losers vis a vis the S&Ls. In 1945, S&L accounts added up to only 48% of savings deposits; by the last yearend the S&Ls had climbed past their rivals to take a 14% lead. The other giants of institutional savings have also felt the impact of the busy S&Ls. In 1945, the S&Ls had only a modest 19% of life company reserves, compared with 44% at the yearend. And the S&L ratio to time deposits has climbed from 24% to 70%.

• **Drowned Out**—To the casual observer, these solid gains of the S&Ls have passed almost unnoticed amid the rumbling drum beats of an outside competitor: the open-end investment trusts. The trusts are way ahead in volume of publicity sound, and even in percentage of gain. But in dollar volume, their showing remains relatively puny.

In all truth, the trusts have been sensational in percentage of gains, with assets six times greater than they were at the start of the 1946-1955 period. No institutional savings can make that claim, or even come very close to it. But translated into dollars, the funds' share of savings assumes a less formidable guise. Over the 10 years, their assets climbed by only \$6.5-billion—which, however sizable it may look to an ordinary mortal, is a mere peanut compared with the S&Ls' \$24.9-billion gain. Nor did the funds' gain look much more impressive against other institutional competitors, for it scored only 20% as much as the life reserves, 41% as time deposits, and 50% as mutual savings.

What's more, even in the past year, the S&Ls climbed \$5-billion compared to the funds' \$1.7-billion. And all this despite fund publicity so persuasive that a few years ago it moved one authority to label the open-ends "the fastest growing financial phenomenon in America."

• **The Whys of It**—Two factors seem to account for most of the postwar popularity of the S&Ls:

• Heavy advertising and promotion. The S&Ls have taken a leaf from the promotion book of the open-end trusts. The din they set up has been effective, too, if one judges by the anguished howls of "foul" from the other institutional savings groups.

• Higher returns. Most S&Ls have been offering a substantially better return on investment than the banks.

The banks, both commercial and mutual savings, find themselves confronted with more aggressive tactics than ever before. In defense, they have even accused the S&Ls of trying falsely "to give the impression that they are

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 N&W Norfolk & Western	 NORTHERN PACIFIC Northern Pacific	 PRR Pennsylvania RR	 P&W Pittsburgh & West Virginia	 Reading Reading	 FRISCO St. Louis-San Francisco	 COTTON BELT ROUTE St. Louis Southwestern
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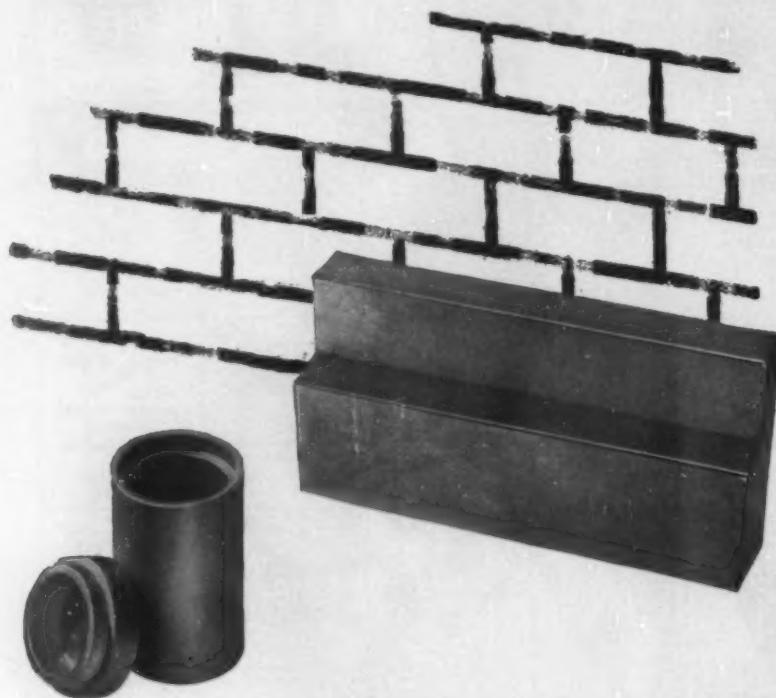
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banks of deposit" (BW-Apr. 9'49, p49). The point being, of course, that S&Ls cannot legally accept deposits; money placed in them is strictly capital, with a share interest in the group.

The S&L people, in their turn, call these attacks a sort of sour-grapes attempt by bankers "to cover up their failure to furnish people with the thrift and home service they need."

Impartial observers on their Olympian middle ground, think there is something to be said for both sides. They agree that the bankers have never beaten the woods for new business as they should. But at the same time they stress that part of the S&Ls sales program has, intentionally or not, caused many postwar savers to think of them as banks of deposit.

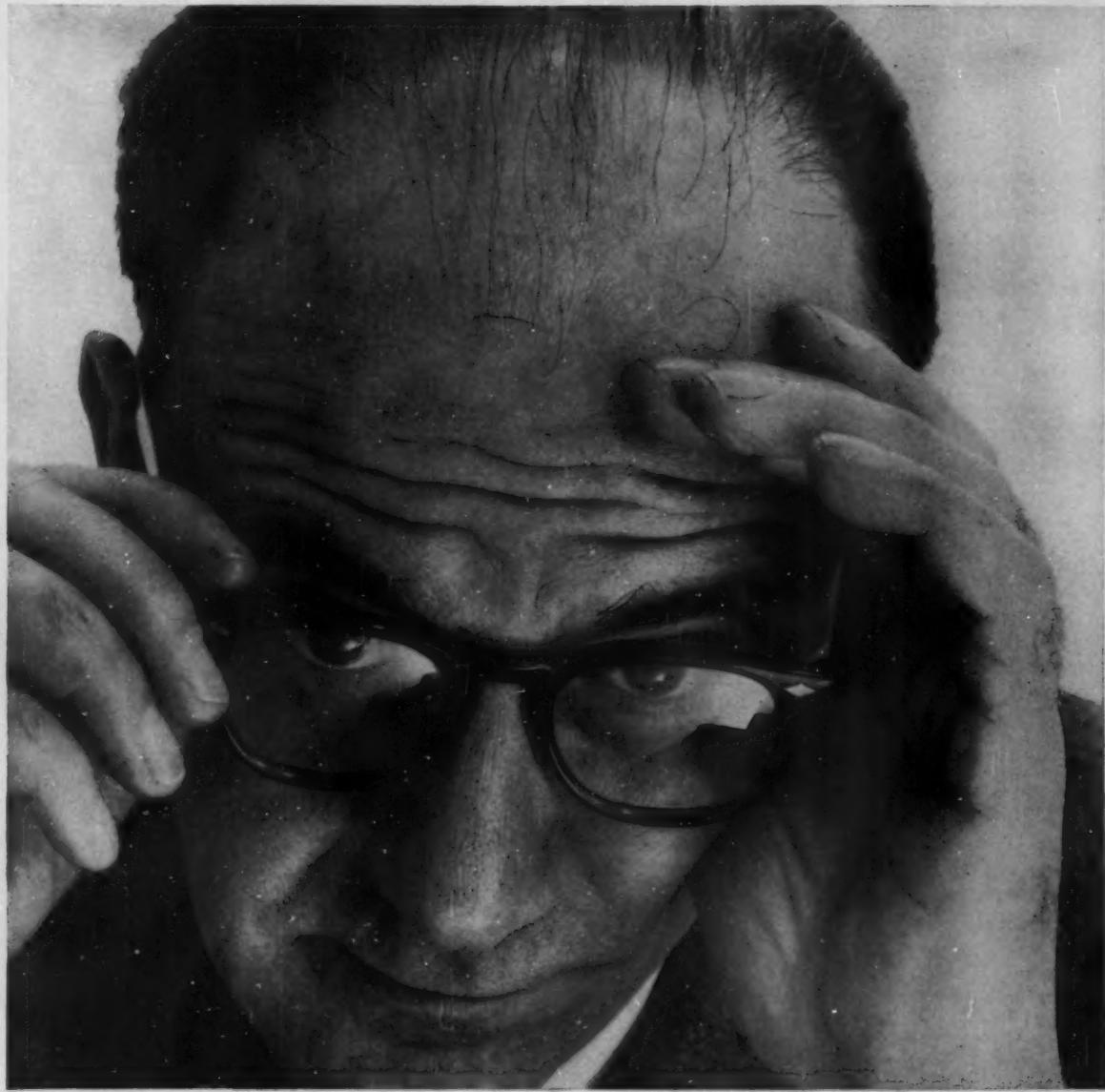
• **Withdrawals**—Actually, the S&L shares are a far cry from bank accounts, quite apart from the fact that the S&Ls cannot legally accept deposits. Holders of S&L shares cannot draw out their money with the freedom of a bank depositor. The S&L, whose share accounts are insured by the Federal Savings & Loan Insurance Corp., is expressly forbidden to "issue any demand securities or advertise or represent that it will pay holders of its securities on demand." Instead, the holder of the S&L "savings account"—a term that makes bankers writhe—must apply in writing to the association, requesting that it repurchase his shares.

Of course, under present conditions, you undoubtedly can draw your money out of an S&L without undue delay. But conditions might change, and in times of stress the S&Ls have the right to amend the rules and stall off would-be withdrawals for an extended period without going "in default." Some banks also have the right in time of trouble to demand 30-day notice of withdrawal, or even longer. But the period is fixed, and cannot be amended.

What this adds up to is that banks with large savings deposits must retain considerable liquidity. While they do buy some mortgages—not classed as liquid investment—they must also keep plenty of money in such readily liquid, but low yielding, issues as governments and "legal" corporates, along with a sheaf of just plain cash in the vault.

S&L investments, on the other hand, are limited strictly to governments, Federal Home Loan Bank securities, loans against their own shares, property improvement loans, and first mortgages. This is fair enough, since they are definitely mortgage banks; to justify their place in the economic sun they must provide a major supply of mortgage money. This they have definitely done in the postwar years.

It's because of this mortgage aspect that the S&Ls aren't required to pay off shareholders on demand. And—since



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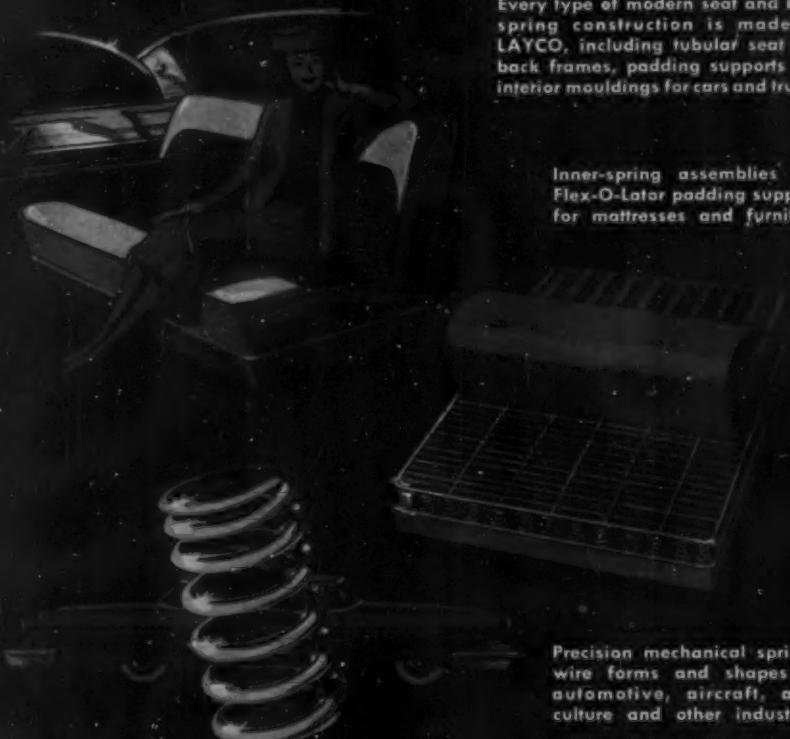
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Literature on request

CONVEYORS...LOADERS...DITCHERS...ASPHALT PAVING EQUIPMENT

long-term mortgages are more lucrative than governments—it also explains why S&L dividends of late have been so much more liberal than the interest paid on savings and time accounts.

By their very nature, S&Ls should obviously seek out longer-term investment funds, rather than temporary savings. But their critics say that their hyped up promotion since the war has brought them a lot of temporary savings, attracted by better-than-bank dividend rates. As proof, the critics point to the high rate of S&L withdrawals in recent years, rates that climbed to 69.4% in the first five months this year, compared with 65.5% in the 1955 period.

• **Other Criticisms**—The S&Ls have also been the object of some harsh words because of their declining liquidity ratio. In 1946, their cash and governments made up 24.9% of total assets. In 1950, this was down to 14.3%, and recently the figure was 11.8%.

Eyebrows have also been lifted at the surplus position of many S&Ls plus the size of their borrowings, and especially at "the complacence" with which some managements have viewed the conditions.

Of course, all these criticisms could be silenced simply by boosting the portion of earnings that are retained. But the cure could cause some severe pains: It's precisely the liberal dividend policies that have caused the sensational postwar growth of the S&Ls.

FINANCE BRIEFS

Procter & Gamble Co. plans to make its first trip to the long-term money market since 1952, with a \$70-million, 25-year debenture issue scheduled for public sale in September. Pres. Neil McElroy early this week stressed the need for funds to expand P&G's chemical pulp plant as well as its soap line.

A postwar high in interest rates charged by leading New York City banks was hit in the second quarter of this year, according to the Federal Reserve Bank of New York. Short-term rates on the average in the quarter were 3.89%, up from 3.64% in the first quarter. Rates on term borrowing went from 3.82% to 3.86%.

A branch war between Philadelphia National Bank and Fidelity-Philadelphia Trust is still going strong in the suburbs of the Quaker City (BW-Mar. 24'56, p129). PNB will merge with Delaware Valley Bank & Trust in Bristol, Pa., if stockholders approve, and Fidelity-Philadelphia has announced plans to take over Farmers National Bank in the same city.

Hall Industrial Water Report

New Plant or Expansion of Old One

How well you engineer your plant services may determine whether you get continuous production or operation like a paralytic centipede. Water for steam generation, for cooling, for use in process—and water leaving the new plant—can be designed to be the least of your troubles. But the best time to listen to someone who knows how to make water behave is while you are still in the planning stage.

It's Cold Out There!

Frequent subzero weather with temperatures as low as —45 at the site of a proposed new plant in Minnesota was an important factor in the choice of a heating system by a large mining company planning to process iron from taconite. Space heating constituted about ninety percent of the load. Buildings to be heated were widely scattered over a large area.

When a high-pressure hot-water heating system was decided upon, water treatment had to be considered from two angles: protection of the boilers and protection of the heating system. Hall Laboratories was invited to study the raw water available and to recommend treatment.

Water could be obtained from either of two intakes from the surface supply; samples from both were analyzed. The types of metal used in construction of the heating system were determined, zeolite softening and deaeration of makeup, chemical conditioning and proportional chemical feeding facilities were thoroughly discussed in a survey report by Jack Summerville, Hall staff engineer. After completion of the survey report, it was learned that well water might have to be used temporarily because of delay in completion of the surface supply pipe line. Because the well water does not have as desirable a composition as the surface water, Hall urged that the pipe line be completed as quickly as possible and recommended that the well water be zeolite softened even though regenerations would be much more frequent.

The boilers have now been boiled out and, on Hall's recommendation, acid cleaned to insure thorough cleanliness of the heater surfaces. The plant is beginning operation.

Faith Justified By Performance

When an Eastern paper specialty manufacturer decided to build a new plant in California, the chief engineer wrote: "In dealing with the problem of water supply, water treatment, and so forth, we felt it desirable to call in Hall Laboratories, not only because of the past relations which have existed for so many years, but because we intend to retain Hall Laboratories as consultants for our California plant."

To start the survey, Hutcheson Page, of Hall's New York office, conferred with the plant management about the purchase of their boiler. After extensive checking of specific requirements, a factory-assembled, water-tube boiler was ordered.

Hall Laboratories already had experience with the water in the chosen locality of California. This provided a sound basis for recommending the proper pretreating equipment.

Because of the potential cost of water supplied from a city aqueduct, the plant wished to use water from its own wells. Hall recommended pretreatment equipment flexible enough so that it could properly prepare any of the various waters available for future use in any standard type of boiler operating at 250 psi. A salt regenerated cation-anion exchange system was suggested and accepted.

The plant also has followed other recommendations made by Hall for internal boiler-water treatment as well as treatment of steam by Haganin®. A recent service report from Hall field engineer Orville Morrow states that the plant is maintaining very good treatment control.

South of the Border

Hall Laboratories pursues the "Good Neighbor" policy by helping many clients in South America and the West Indies on a consulting as well as on a continuing service basis.

A client in Maracaibo planned to install an additional boiler plant adjacent to the one already serviced by Hall Laboratories. Hall helped the plant select evaporator feedwater pretreating equipment, chemical feed pumps, pH meters, and helped plan the laboratory layout prior to start-up. Then Jack Summerville of the Hall headquarters staff made a trip to Maracaibo to help start operations, with special attention to their hot lime-gypsum reactor, pressure filters, hot zeolite softener, evaporators, and the treatment of their feedwater-condensate and boiler-water systems.

Continuing satisfactory conditions have been maintained by correspondence between the plant and Pittsburgh headquarters, supplemented by an annual consulting trip by Hall staff engineer, Alex Henricks.

Industrial Water Problems Require Special Handling

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BRIDGEPORT (Montgomery County), P.A.

In Regions

• • •

Oil Company Fights State's Attempt To Force Crude Buyers to Overstock

For years, oil-producing states have regulated their production in line with conservation practices. Their regulatory agencies have checked market conditions, then set allowable output. Now Oklahoma wants to go one step further: It is trying to force buyers of crude oil to take the full allowables, regardless of whether they can use or even store the oil.

Gulf Oil Corp., which produces and purchases in Oklahoma, is testing in the courts the legality of the Oklahoma Corporation Commission's action. The commission had set July allowables higher than June's—higher, too, than purchasers' requirements—and ruled that buyers must take all. Anyone wanting to buy less has to get its permission, the commission held.

After announcing it would take in July only 75% of what it bought in May, Gulf tried unsuccessfully to get a temporary injunction from a federal district judge. Next week, it will petition a three-judge panel.

The Oklahoma commission apparently wants to step up Oklahoma production in an effort to combat imported crude. (Texas also raised its July allowables above purchasers' nominations [BW-Jun.23'56,p36]). Gulf, a major importer, has gone along with Washington on voluntary cutbacks of imports. It's a safe guess that no importing company wants a state to take over import controls.

Oklahoma oil goes to Gulf's inland refineries, which can't process imported crude; the coastal refineries are equipped for imported oil but can't handle domestic stuff. Right now, Gulf's inland refineries are loaded with domestic oil. It would take time for Gulf to adjust its refining capacity to a different make-up in the crude flow, and that is something Gulf would want itself—not the Oklahoma commission—to control.

• • •

Ohio Becomes Second Auto Capital As Industry Overflows Native State

If it isn't already, Ohio soon will be the state with the second largest automotive industry. General Motors Corp. is building a huge Chevrolet assembly plant and Fisher body factory at Lordstown, east of Akron, and Chrysler Corp. is erecting a stamping plant at Twinsburg, between Akron and Cleveland.

Last week, Ford Motor Co. announced that it will build a Ford assembly plant near Lorain, west of Cleveland along Lake Erie. Ford now has in the Cleveland area its largest concentration of facilities outside Detroit.

The new plant, with 4,500 workers on a two-shift basis, will give Ford about 23,000 employees in the Greater Cleveland area. Developed during the last 10 years, Ford's Cleveland area complex will give the company about as much integration in the region as the average motor car builder attains anywhere. Of course, it's still short of Ford's integration in Detroit.

Auto people attribute the growth in Ohio, among other things, to the proximity to steel mills, the prospect of completion of the St. Lawrence Seaway and the road transportation offered by turn-



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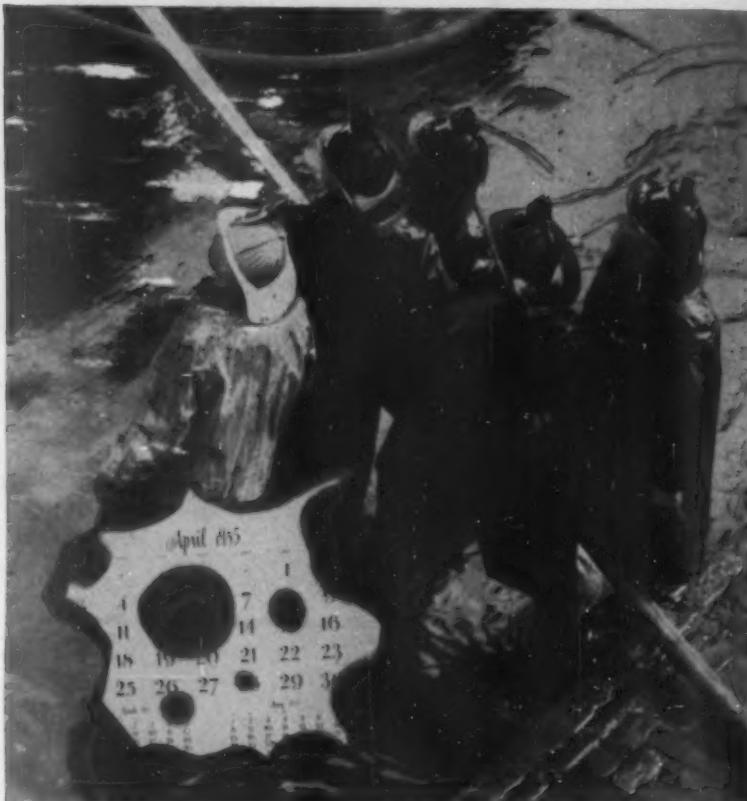
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pikes. Also, they say, a survey at Ford's stamping plant in Cleveland shows that workers drive in from 40 communities in northeastern Ohio.

Ford's Lorain plant will be the first assembly plant in the Cleveland area since Hupp quit making cars in the 1930s.

• • •

Harvard and Its Hometown Establish a Liaison

Harvard University is moving to smooth out its long-standing difficulties with its home city of Cambridge, Mass. The tension has resulted from a tight parking and housing situation in the Harvard Square area and the fact that Harvard, although the city's third largest taxpayer because of its commercial properties, pays no taxes on its campus facilities.

The atmosphere warmed up again in May after the Harvard Crimson, student paper, quoted Pres. Nathan M. Pusey's criticisms of Cambridge city policies. A Cambridge city councilman complained that police had to rush in "every time the students start one of their foolish riots." He suggested Harvard become "a state of its own like the Vatican." About 2,000 students responded with a riot.

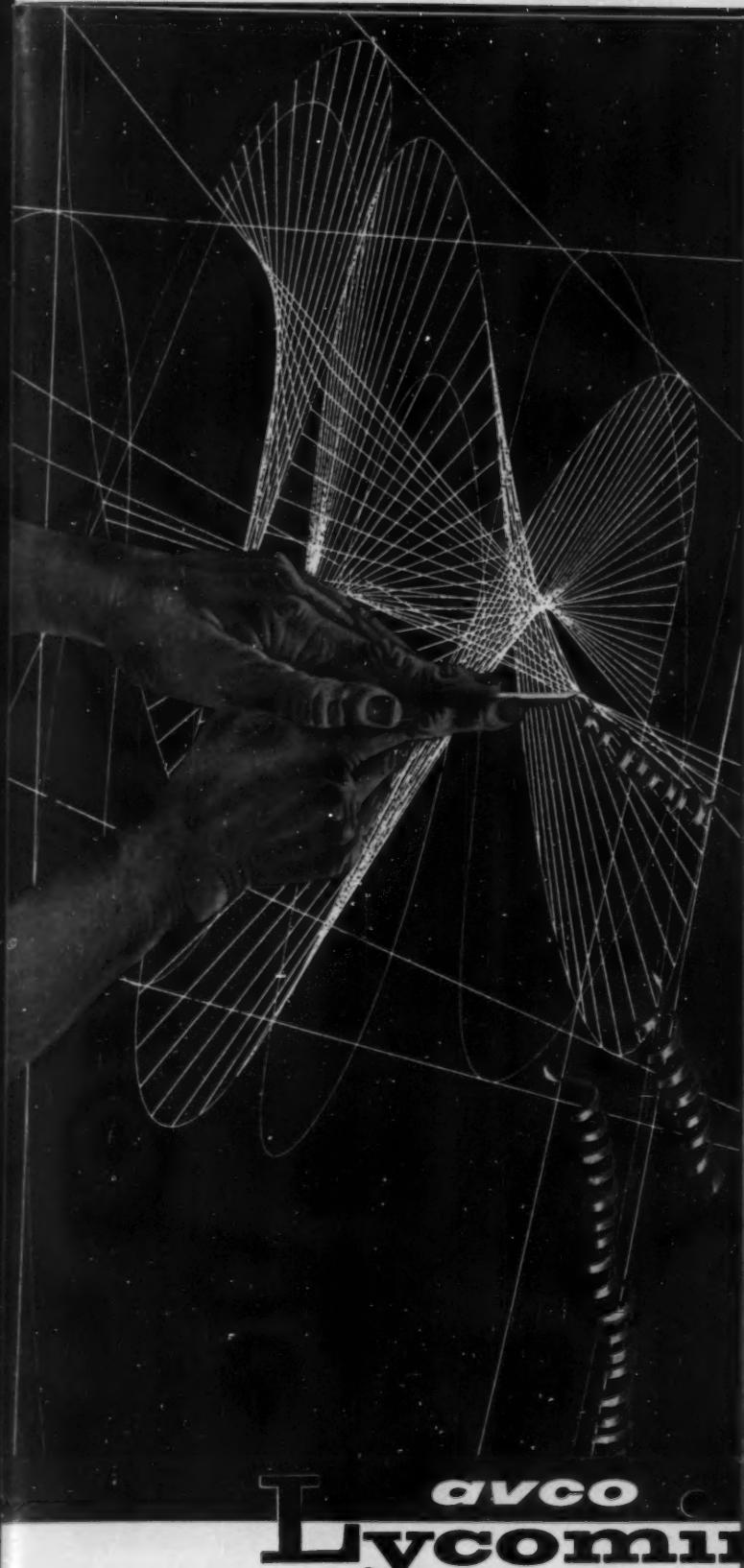
Now Harvard has established a planning office to provide a point of contact between city and university in planning future Harvard needs.

• • •

Regions Briefs

Manhattan's first heliport is being built by the Port of New York Authority (BW-Jul.14 '56,p74), on a temporary bulkhead site along the Hudson River. Starting about September, it will be used for mail and cargo, with New York Airways adding passenger service later on. Eventually, the authority is to replace this heliport with a permanent one, and add others.

Crackdown: The Washington State Pollution Control Commission ordered Rayonier, Inc., to stop dumping untreated waste into Puget Sound from its Shelton pulp mill. The commission found "a situation detrimental to oysters and fish." Rayonier asked for a hearing.



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INTERNATIONAL OUTLOOK

BUSINESS WEEK
JULY 21, 1956



It's not "Fortress America" thinking that lies behind the Pentagon's idea of reducing U. S. armed forces by 800,000 men in the next three or four years.

Secy. of State Dulles stepped up this week to nip that notion in the bud. And he had an eye cocked toward Western Europe, especially West Germany, as he tried to put things in perspective.

In commenting on the position of Adm. Radford, chairman of the Joint Chiefs of Staff, (page 39) Dulles made these points:

- The U. S., like the U. S. S. R., is reconsidering the balance between conventional forces and the fast-developing air-atomic stuff. The problem is how to find the balance that gives adequate security the most economical way.
- The U. S. is just as committed as ever to a policy of collective security. We will not back down from our NATO commitments—though someday we may have fewer U. S. ground forces in Germany and more air-atomic strength there.

Dulles stressed that the revamping of military thinking, both here and in Moscow, is largely an internal matter—to save manpower in the case of the U. S. S. R.

However, there is no blinking the fact that the easing of East-West tension counts on both sides. What you are getting is disarmament—to a degree—by unilateral action. That's still a long, long way, of course, from effective control over the nuclear stuff.

Britain plans to move faster and, relatively, further than the U. S.

The Eden government has decided to cut defense spending by 25% over the next two years—with the main cut to be taken in ground force manpower. This will involve a reduction in British army units in Germany, though that's something that first has to get the approval of the NATO Council.

Three things have pushed the British to their decision:

- The conviction that the war threat has dwindled.
- The pressure from military technicians for smaller forces, equipped with atomic weapons and guided missiles.
- The urgent need to relieve Britain's overloaded economy—the thing that weighs most heavily in government calculations.

Given the trend here and in Britain, it is hard to see how Chancellor Adenauer can win his fight for a 500,000-man German army.

But the decisive point for Adenauer isn't the size of a German army. It is in adding enough effective German power to NATO to bring Moscow to terms on German unification. It may be that the prospect of more Western air-atomic strength on German soil will be just the thing to bring Moscow around.

The Soviet economic offensive is running into trouble—both in the Middle East and South Asia.

Cairo has decided to have the West build the giant Aswan Dam.

INTERNATIONAL OUTLOOK (Continued)

BUSINESS WEEK
JULY 21, 1956

Burma has been disillusioned by Soviet economic assistance, now is seeking an economic aid loan from the U. S.

Domestic pressures in East Europe are cutting down the ability of Soviet satellites, like Poland, to supply capital goods to underdeveloped countries.

Washington can chalk up a victory over Moscow on Aswan. Premier Nasser has decided that, on balance, there is more to be gained by doing business with the West.

But it wasn't until Washington called Nasser's bluff (BW—Jul. 14 '56, p141) that he quit his blackmail game.

U. S. officials are now in Rangoon talking with the Burmese about a long-term, low-interest loan of perhaps \$25-million. (The Burmese have refused U. S. aid since 1953.) The discussions followed a personal appeal to Pres. Eisenhower from ex-Premier U Nu.

Burma isn't so keen about Soviet aid as it was when Bulganin and Khrushchev visited Rangoon late last year. Several deals made about then have gone sour in the meantime.

So far the Soviet economic drive has been largely based on satellite production—Polish, East German, and Hungarian.

But from now on Moscow will find it harder and harder to use satellite goods for this purpose. With the Poznan uprising has come a real reversal in the domestic policy of several satellites. To keep down discontent, more resources will have to be used at home, the emphasis shifted somewhat from heavy to light industry. Only this week the Warsaw government raised workers' pensions.

From the political angle, Moscow also has taken a rap in the satellites at the hands of Indian Prime Minister Nehru. Last week in Bonn, he came out flatly for independence of the satellites from Moscow.

—•—

The Eisenhower Administration has hit a new snag in its aid program—one put there by the U. S. Congress (page 26). As it stands, the Foreign Aid Authorization Bill requires that 80% of economic development funds must take the form of loans.

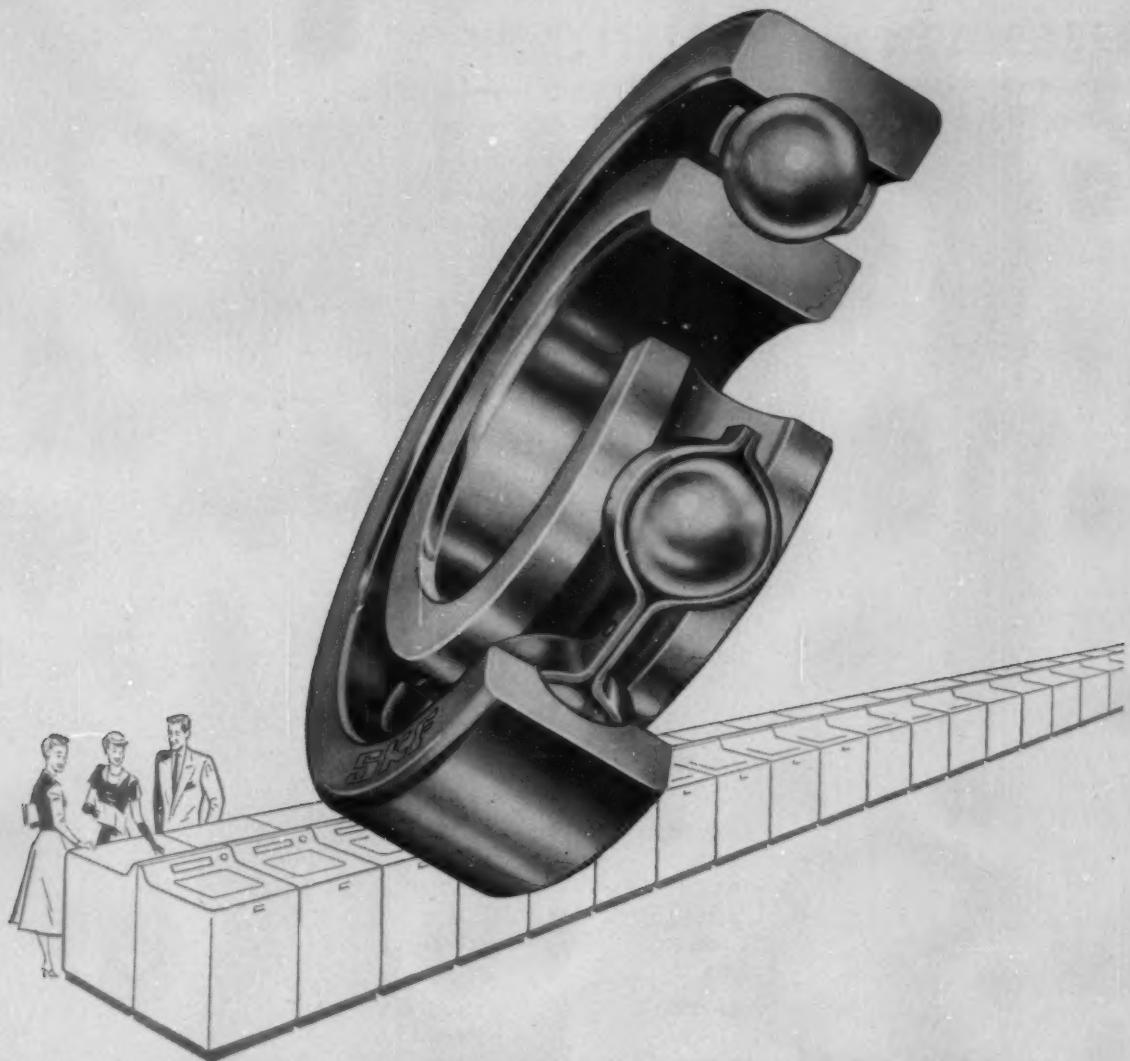
Many new nations seeking development assistance would prefer loans to grants—because, as business deals, they carry less in the way of political obligations. But, U. S. officials fear that our loans may compare unfavorably to those being offered by the Communists. Ours still would be subject to the regular political restrictions on aid spending—for example, to the rule that 50% of the goods would have to be shipped in American bottoms and to Battle Act restrictions on trade with Communist countries.

—•—

Esso Co. (Jersey Standard's U. K. subsidiary) plans to spend another \$36-million extending its refinery at Fawley, near Southampton. The additional capacity will be devoted largely to heavy fuels for industry and power stations. In Britain, demand is rising faster for these than it is for gasoline.

Only recently Esso launched a \$25-million expansion for synthetic rubber materials. By 1958, the total Esso investment in Fawley will come close to \$200-million, with throughput running at over 10-million tons a year.

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BICYCLES imported from Britain sell at five times their Hong Kong price in Communist Peking's new store.

ONLY RUSSIANS—wives of Soviet technicians in China—can afford South China leopard-skin coats.



Peking's Best Is

Red China's pride and joy is Peking's new capitalist-style department store (left). But its wares are priced beyond means of most Chinese, best customers are Russians.



Tagged for Russians

The low skyline of what prewar was called Morrison St., Peking's main commercial drag, is now broken by a large six-story block (picture, left). Although the building looks 20 or 30 years old to Western eyes, it is the Chinese Communists' pride and joy—a brand-new capitalist-style department store.

In its own way, the store—opened late last year—tells a good deal about the new Communist society in China. Its vaulted halls, displays of what are

now luxury goods to the Chinese, shop-windows full of Communist slogans, are a place of pilgrimage for the Chinese escaping their austere lives.

• **The Customers**—It's also immediately evident to the casual visitor that the best customers of the store aren't Chinese at all, but mainly the wives and families of the tens of thousands of Russian technicians in China. Their wives' furs and their shiny leather coats immediately identify the Communist European foreigners as they move



TAILORING traditionally good and cheap, is out of reach of almost all but Russian "big brothers."



DRESSES in the Western style aren't for Chinese women who wear Communists' blue cotton uniform.



TOYS made in China get inspection from Russian women buyers while Chinese customers look on enviously.

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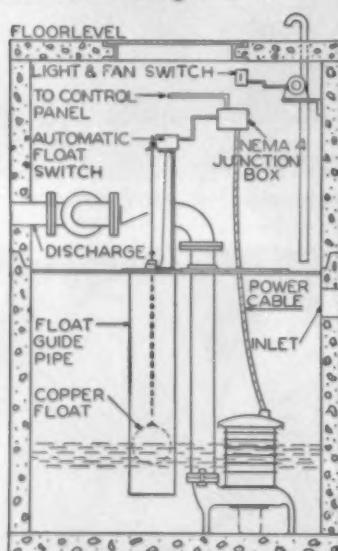


Illustration shows a typical installation.

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BUREAUCRATS' KIDS, well-dressed by Peking standards, are taken through the store on tour.



OUTLANDER, probably Mongolian, takes in "marvels" of store—in this case, fur caps.



TOUR leader wearing face mask shows goggle-eyed sightseers refinements of toy piano.

through the store. But there are some Chinese customers and their purchases tell another story.

The Chinese are turning increasingly to the new store for necessities. The small merchants whose prewar shops did the business along Morrison St. can't compete with the prices at the government's huge emporium—largely because they depend on government sources for raw materials. Shopkeepers, the foundation of the Chinese economy for centuries, are being squeezed out.

The department store, itself, matches the renamed Wang Fu Ching Avenue outside—a provincial street compared with Tokyo's booming Ginza or even Shanghai's Nanking Road, in its moribund state. The store has no escalators or elevators between floors; a primitive ventilation system is called "air conditioning"; displays are largely exhortations to fill Communist production quotas.

Still, crowds flock into the building. Visitors come from all over China;



These are a few of the major companies that have recently located plants in the
"HEART OF INDUSTRIAL AMERICA"



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Chemical Corporation
Clarendon, Ohio



Champion Spark Plug
Company
Cambridge, Ohio



General Electric Company
Roanoke, Va.



Babcock & Wilcox Company
Lynchburg, Va.



General Motors Corporation
Marion, Ind.



Celanese Corporation
of America
Point Pleasant, W. Va.



Moby Chemical Company
New Martinsville, W. Va.



Westinghouse Electric
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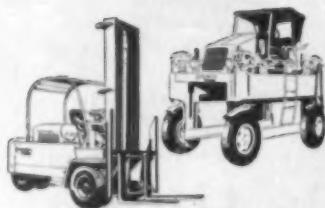
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Cistern room to warehouse moving costs cut 15½ cents a barrel with Gerlinger

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A fast, smooth, economical flow of materials is essential to the manufacture of good whisky. In Louisville, Kentucky, National Distillers purchased a Gerlinger Carrier to increase the efficiency on a single job — moving barrels from cistern room to warehouse. Use of the Gerlinger reduced costs of handling by 15½ cents a barrel.

During 1956, National Distillers, Inc., will save 12,480 man-hours because they solved one materials handling problem. Operational costs for two trucks are eliminated and five men have been transferred to more productive labor. Gerlinger made this possible.

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school children are taken through on tours. Everyone comes to look—not at the padded gowns and the other few essentials that Chinese can afford to buy today—but at the "luxury" items. Swiss wrist watches, for example, sell for 793 Yuan. (A U.S. dollar equals 5.55 Yuan at the official valuation; a Chinese physician earns only about 130 Yuan a month.)

• **Best Customers**—The European specialists working for the Communist government have another standard of living altogether. Their pay scale is so generous that often they literally don't know what to do with their money. That's why you see Russian wives buying expensive furs. Their better clothes—sometimes copied out of Parisian and American fashion magazines—set them off in Peking crowds where men and women wear almost identical, lumpy blue cotton uniforms. And there are signs that the foreigners' obvious prosperity has reawakened the Chinese traditional hostility to outsiders—particularly Russians.

While the foreigners buy the luxury items, the Chinese are looking more and more to the store for their own needs, such as the heavy, padded cotton gowns—necessities in Peking's cold winter. They cost 35 to 40 Yuan each. That's about half a month's salary for an unskilled worker. But still these prices are less than those of the small merchants down the street.

• **Hitting Shopkeepers**—As their customers turn away, the government's whole propaganda machine has gone to work on the shopkeepers. It urges them to meet the government's competition in the department store by forming "cooperatives" among themselves.

The Chinese merchant, perhaps the world's staunchest independent producer, seems to take all this stoically. As a matter of fact, in January there was a historic meeting in Shanghai where a group of "capitalists" voted themselves out of existence. They asked the government to take over their enterprises as "joint" projects. There was mass enthusiasm and at least feigned rejoicing.

But foreigners in Shanghai saw the whole performance as a tragic hoax: There's no privilege any more in belonging to the propertied classes in China. Oppressive taxation, Communist trumped-up labor disputes, and government red tape—all archly "legal"—have made private commerce impossible, and the life of a merchant almost unbearable.

• **Merchants' Fate**—Large owners who cooperate may become managers of state enterprises and thereby retain some of their privileges. But for the small shopkeepers along Wang Fu Ching, the future isn't bright. Many face a merging process that will even-

New Materials Stretch Profits

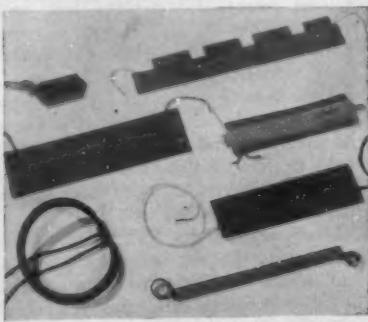
Silicone rubber cuts aircraft warm-up time; opens new markets

Rolling mill production increased 30% with Silicone insulated induction heaters

Beauty industry uncorks wide variety of Silicone-based cosmetics

Faster Take-offs—Need for minimum warm-up time in aircraft led to development of heating elements that can quickly reach and safely hold temperatures of 400 to 500 F. Safeway Heat Elements, Inc., of Middletown, Conn. answers that need with woven resistance wire sandwiched between layers of Dow Corning's Silastic* R Tape. Also used to give maximum life and reliability to diesel electric traction motors, this silicone rubber tape is the only resilient insulating material that can withstand such temperatures.

Void-free, moistureproof insulating jacket has maximum flexibility, minimum thickness, high thermal conductivity, excellent dielectric properties. Safeway heaters may be immersed in fluids that must be heated or maintained at optimum temperatures. Other aircraft applications for the heaters include gyro, bearings, cameras, valves, hose, pitot tubes. Large industrial market is indicated. No. 22

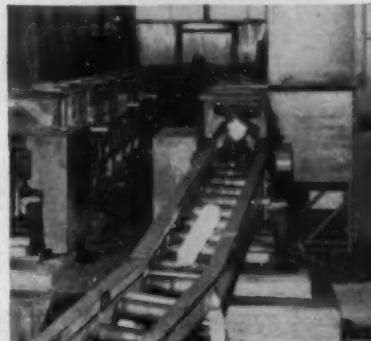


*T.M. REG.U.S. PAT. OFF.

Fish Foam—Trout churn up troublesome foam in tanks carrying them from hatcheries to your favorite fishing hole. Here, as in thousands of industrial applications, a little Dow Corning silicone defoamer kills foam; saves cleaning scum from tank walls; makes everybody happier—including the fish. No. 23

• **No Siestas for Induction Heaters**

Vancouver Rolling Mills of Canada cut steel ingot heating time 75%; reduced fuel costs \$200 per day; stepped up production 30% with induction heating coils insulated with Dow Corning silicones. Cold ingots are heated to 2300 F and converted to bar stock in 10 minutes. Rated production is 20 tons an hour. With heating coils cheek by jowl with white-hot ingots, only silicone insulation can prevent coil failure. Same's



true in any hard working or space and weight saving electrical or electronic equipment. No. 24

Self-bailing Boats—“Bail-a-matic” pumps in Scott-Atwater's new outboard motors start bailing the first time out after winter hibernation, thanks to a few drops of Dow Corning 200 Fluid as nongumming lubricant for rubber impellers. No. 25

Grease Cuts Labor Cost—Relubricated every 8 hours with high temperature organic grease, injector valves on Cooper-Bessemer engines in a gas field compressor station still required frequent cleaning and replacement. Relubrication cost 1600 man-hours a year plus materials. Dow Corning 41 silicone grease, used since 1953, cuts relubrication schedule from 3 times a day to 3 times a year;

minimizes down-time and replacement costs. Comparable savings reported for heat-stable silicone lubricants in hard-working motors, textile machines, oven conveyors. No. 26

• **Lasting Beauty**—A few years ago, silicone-based cosmetics were total strangers to drug store shelves and beauty salons. Now, they're big business and growing like Jack's bean stalk. Latest count found over 60 cosmetic manufacturers making new or improved products through use of silicone fluids. List includes protective hand creams, sun-tan oils, nail polishes, after-shave lotions. Anatomy-wise, applications range from baby bottoms to hair dressings.



How come? With properties unlike those found in conventional ingredients, silicone fluids developed by Dow Corning give cosmetic industry new selling features. Durably water repellent, nonvolatile and harmless physiologically, silicones help cosmetic chemists create new and better products. Also important is rapidly growing sales appeal born of major contributions made to every day living and to the industrial economy by silicones. No. 27

• **Competitive Advantage**—often hinges on materials engineering. That's why design, production and maintenance men need handy new Reference Guide to Dow Corning Silicone Products. No. 28

Dow Corning Silicones Mean Business!

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CANADA: DOW CORNING SILICONES LTD., TORONTO
GREAT BRITAIN: MIDLAND SILICONES LTD., LONDON
FRANCE: ST. GOBAIN, PARIS



Today's "hottest" topic . . . when the staff talks materials handling

Low cost and convenience advantages of LP-Gas are snowballing a fuel revolution among lift truck users, and—as usual where pressurized gases or liquids are handled—Hackney has been in it from the start.

Of course it was Hackney engineers—working with lift truck manufacturers, ICC, UL and NBFU—who developed the first safe, easy-to-use

replaceable fuel cylinders for industrial lift trucks.

Just as it has been Hackney first for a long line of quality container developments during the past 54 years. Containers for oxygen, acids, compressed air and refrigerant gases are others. When you come to container problems, come to Hackney for expert container engineering.

Pressed Steel Tank Company
1493 South 66th Street, Milwaukee 14, Wisconsin

Manufacturer of Hackney Products



CONTAINERS AND PRESSURE VESSELS
FOR GASES, LIQUIDS AND SOLIDS

tually eliminate their livelihoods by closing their shops, forcing their emigration to the outskirts of the Chinese Communist empire, or simply dropping them into poverty and oblivion. That already has been the fate of the large number of Chinese employees of foreign companies that carried on foreign trade in Shanghai and Tientsin. Their places in the new state enterprises have been taken by young, inexperienced clerks—who are, however, "ideologically sound."

British Cars Lag

West Germany takes the lead, as heavy restrictions put a curb on British domestic and export sales.

West Germany is clearly a car's length ahead of Great Britain as the leading Western European car producer and exporter. And there's no sign that Germany will slacken its lead.

The latest figures show that during the first five months of this year, German car production totaled 380,908; British, 337,560. Even worse from the British viewpoint were exports: German cars, 181,000; British, 140,135. While Germany's exports are 20% above last year's, Britain's exports have gone precisely the other way: down 20% from a year ago.

These are happy statistics for German producers—particularly Volkswagen, which is months behind in meeting U.S. and other foreign demand. At home, the German market continues strong, partly because of general tax reductions and special tax privileges for workers commuting by car.

• **Too Many Restrictions**—But with the exception of fairly steady successes in truck sales, British makers are glum. They attribute car sales decline to:

Australian restrictions: Two-thirds of British vehicle exports go to the Commonwealth, and Australia normally soaks up half of this. But stiff imports cuts and higher sales taxes have turned this market sour.

Home restrictions: Deliberate government moves to clip installment buying and bridle easy credit have reduced home purchases. And this has come just when Britain needs a healthy home market to help keep export prices competitive.

Other restrictions: An agreement last year between Germany and Sweden has hurt the Swedish market for British cars. And shipping rates to West Coast ports here—California is Britain's strongest market in the U.S.—apparently have jostled sales.

• **Too Conservative**—Industry observers

If you sell competitively to new construction . . . you need more than advance information on new construction projects — you need the fastest, most complete news service you can economically use — here's why **Dodge Reports** meets your needs:

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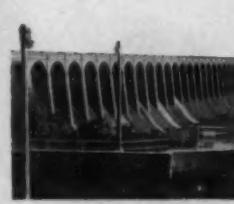
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From the specialized Dodge Service, or Services, you select only the type and size of projects on which you require advance information. In General Building you may choose all or any selection from among 26 classifications . . . in Houses 3 . . . and in Engineering 11.

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say that, to some extent, the British car industry has only itself to blame. They claim the industry has (1) clung too long to its traditional conservatism in car design; (2) failed to utilize worldwide market research sufficiently; and (3) taken too long to improve sales and service outlets. However, the industry — they say — is at last awakening to these troubles. For instance, it's boosting spare-parts shipments, restyling cars such as the Sunbeam Rapier.

BUSINESS ABROAD BRIEFS

Tractors for Tito: Yugoslavia has signed a contract with Massey-Harris-Ferguson in Britain for delivery of 6,000 tractors over the next 10 years. Later, the Yugoslavs will build the Ferguson tractors under license.

Bombay-to-London in 12 hours: Air India International has ordered "at least" two Boeing 707s, costing \$4.2-million apiece, to make the run.

New bank in Beirut, Lebanon: will be the fourth overseas branch of Bank of America (International), wholly owned subsidiary of Bank of America.

Buying hotel properties abroad — in Europe and the Middle East — may be the next move of Hotel Corp. of America. Its president, A. M. Sonnabend, has just returned from a six-week trip inspecting real estate.

Bauxite boom: Kaiser Aluminum & Chemical Corp. is scanning South American bauxite mines, including Venezuelan sites, for possible location of a new aluminum plant nearby. . . . Reynolds Metals Co.'s bauxite mines in Haiti, with maximum capacity of 900,000 tons yearly, begin operations this month to supplement mines in Arkansas, Jamaica, and British Guiana.

A \$60-million newsprint mill, to produce over 100 tons daily, will be built by Anglo-Newfoundland Development Co., Ltd., in northwestern Ontario.

Lure of the Orient: Cheaper labor has prompted Ingalls Shipbuilding Corp. to negotiate a long-term lease for building big oil tankers at the Keelung Shipyard on Formosa.

Gasping for breath: Peru's Central and Southern Railways will try out six Alco diesel engines on tracks running as high as 15,805 ft. in the Andes. Peruvian Corp., Ltd., the railways' owner, has a \$1.6-million Ex-Im loan in the works to cover the order.



Typical of the finish on all Toledo Scales is that on this full height portable unit.

BOTH STEEL AND ALUMINUM PARTS ARE PROCESSED IN THE SAME 6-STAGE MACHINE AT TOLEDO SCALE

Steel parts are Granodized, aluminum parts are Alodized to inhibit corrosion and provide an excellent base for the high-grade finish used on these familiar products

Toledo Scale knows that the fundamental prerequisite of a good paint job is a properly prepared base material upon which the finish is to be applied. To provide this all-important base, it Granodizes most steel parts with Granodine® and Alodizes most aluminum parts with Alodine.® Granodizing is a chemical process for the treatment of iron and steel which converts metallic surfaces to a nonmetallic coating of the proper texture for inhibiting corrosion and

greatly increasing the adhesion and durability of the paint finish. Alodizing performs the same functions on aluminum parts.

Both of these processes are performed in the same 6-stage machine. And both add to the long life of the Toledo finish. Perhaps these ACP processes can be used effectively in your plant. Complete data about both of them are available upon request. Write us.



Part of 6-stage machine in Granodizing Department at Toledo Scale Co.

AMERICAN CHEMICAL PAINT COMPANY, Ambler 37, Pa.

DETROIT, MICHIGAN

ST. JOSEPH, MISSOURI

NILES, CALIFORNIA

WINDSOR, ONTARIO

CHEMICALS
ACP
PROCESSES



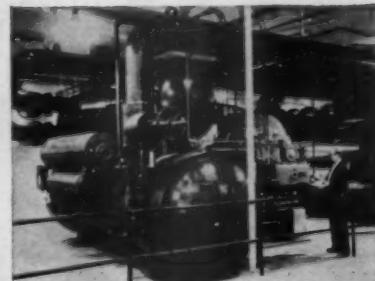
"Worthington air conditioning pays off in comfort and production efficiency," says Hallmark Cards

From the first, Hallmark Cards was determined to make its new home in Kansas City reflect the very best in working comfort. This naturally included air conditioning by Worthington.

In addition to comfort, Worthington air conditioning has materially increased production efficiency at Hallmark. Not only does this new system permit maintenance of temperatures ideal for handling of fine paper stock, but it also controls humidity—a vital factor in the prevention of cracking, breaking, stretching and poor receptiveness to ink. Lastly, Worthington's air conditioning system protects the quality and appearance of famous Hallmark greeting cards by effectively removing paper-blemishing lint and dust from the atmosphere.

Let the Worthington Climate Man show you how air conditioning can control climate for greater efficiency, more profits. Get in touch with your nearest Worthington distributor right away. Or write to Section A6102, Worthington Corporation, Harrison, N. J. In Canada: Worthington (Canada) 1955, Ltd., Toronto, Ont.

A6102



A 1,500-ton Worthington air conditioning system creates a controlled climate for the new Kansas City home of Hallmark Cards, Inc.

WORTHINGTON



CLIMATE ENGINEERS TO INDUSTRY, BUSINESS AND THE HOME

In Washington

• • •

Clarification of "Feeder" Status Gives University a Tax Refund

The U.S. Court of Claims wrote an epilogue last week to what has been a closed chapter in tax law since 1951. The court held unanimously that New York University was entitled to a refund of \$2.4-million (plus interest), representing taxes paid between 1947 and 1951 by a "feeder organization." Since 1951, there has been no similar situation involved.

The feeder company is Knapp Bros., Inc., a shoe manufacturer operating as a commercial venture but, since 1947, solely for the benefit of NYU.

In the Revenue Act of 1950, Congress specified that a feeder organization, even though it be for the sole benefit of a tax-exempt body such as NYU, should be taxed like any other commercial enterprise. Before that revision—which became effective in 1951 and which was precipitated by another NYU feeder (Mueller Macaroni Co.)—the law was vague. Looking backward to that period last week, the Claims Court held that the doubt should be resolved in favor of the feeder recipient.

Internal Revenue Service spokesmen professed no alarm about the Knapp decision. Knapp pays taxes like any other corporation, and IRS says the outcome poses no challenge to current law.

• • •

Cities Are Only Human, Too— They Spend More Than They Earn

The high cost of government is causing budgetary headaches all over the nation. This week, the Census Bureau reported on the 1955 finances of 481 cities with more than 25,000 population, with three major findings:

- The cities had a total revenue take of \$8-billion, but spent \$8.4-billion.
- Their combined indebtedness hit an all-time high of \$13.2-billion.
- They repaid \$767-million of prior debt, but new borrowings came to \$1.7-billion.

• • •

Justice Dept. Blasts Dixon-Yates Group, Asks Court to Throw Out Damage Suit

The Justice Dept. last week asked the U.S. Court of Claims to throw out a \$3.5-million damage suit filed by the so-called Dixon-Yates power group.

"Unlawful, null and void, and contrary to public policy" were the Justice Dept.'s words to describe the contract—since canceled—between Dixon-Yates and the Atomic Energy Commission for construction of new generating facilities on the fringe of the Tennessee Val-

ley Authority. Democratic critics had used the same words and the same key arguments against Dixon-Yates months ago (BW—Aug. 6 '55, p26). For example, the Justice Dept. brief filed with the Court of Claims asserts:

- Activities of Adolphe H. Wenzel—in advising First Boston Corp. on Dixon-Yates financing and in advising the government as a special Budget Bureau consultant on the project—involved "conflict of interest so contrary to public policy as to render the alleged agreement null and void."

- Waiver of a 30-day waiting period on the contract's finality in late 1954 by the Joint Congressional Committee on Atomic Energy—then under Republican control—was "invalid."

- Discretionary power ceded to the Dixon-Yates group failed to meet formal requirements essential to an enforceable contract.

The Dixon-Yates combine is suing for \$3.5-million for damages it says it incurred through AEC's cancellation of the contract a year ago, on direct orders of Pres. Eisenhower.

• • •

SBA Completes Its Biggest Year, Lends \$126.4-Million in Fiscal 1955

The Small Business Administration, where success is gauged by the amount of money lent, has just finished its biggest year.

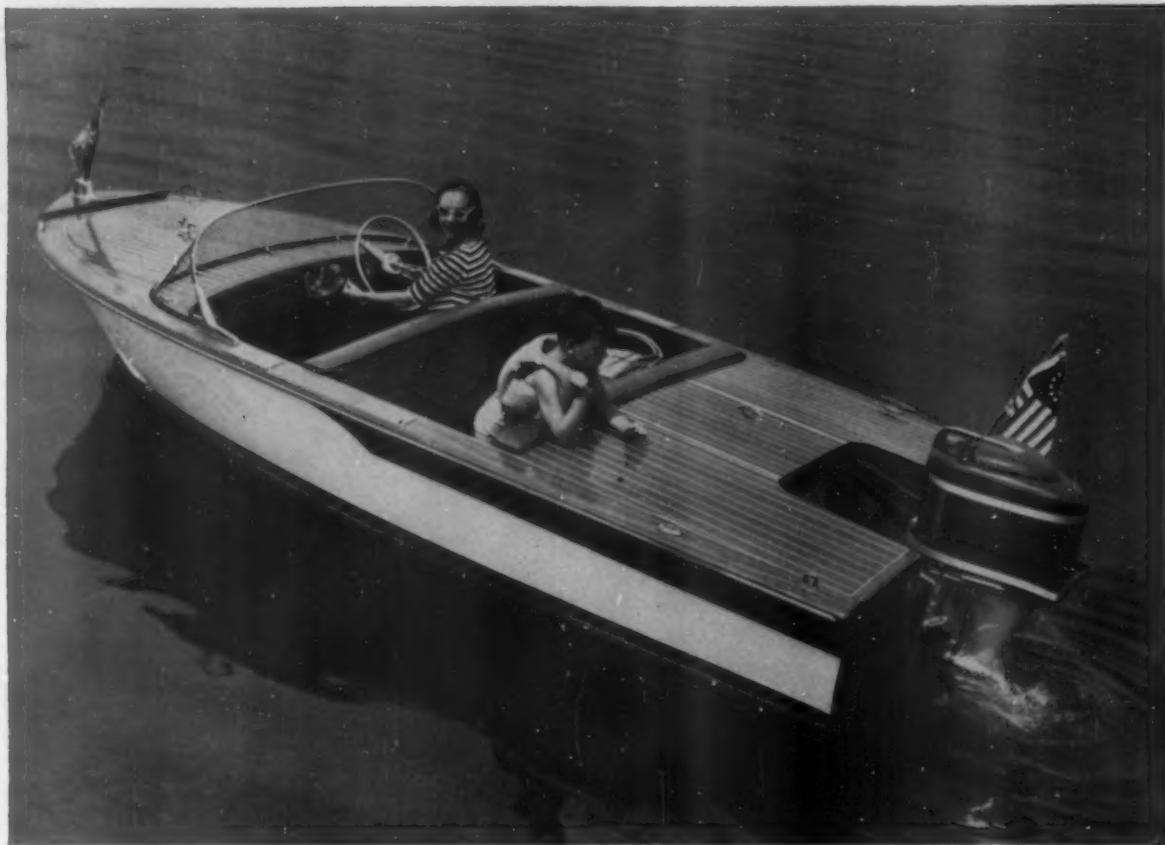
Wendell Barnes, SBA chief, says his agency approved 5,224 loans for \$126.4-million in the fiscal year ended June 30. By comparison, SBA lent only \$63.8-million in 2,258 transactions during the prior year. A prime factor, says Barnes, is sharp upgrading of the quality of loan applications. SBA's average approval rate is now running about 57%.

Of the new crop of loans, 1,915 worth \$82-million (average about \$43,000) were for business. The remainder were disaster loans averaging about \$13,400.

• • •

Price Discrimination Rulings Hit Two Defendants, Clear One

The Federal Trade Commission this week announced three decisions under the Robinson-Patman Anti-Discrimination Act. Business-defendants won only one of the decisions. FTC held that: **Maryland Baking Co.**, a national manufacturer of ice cream cones, violated the act by reducing its prices to jobbers in the Baltimore-Washington metropolitan area on rolled cones, while charging a higher price to jobbers in all other sales areas. FTC says the discrimination was "apparently in retaliation" for the entrance of a small cone manufacturer who sold only in the two-city area. . . . **P. Sorensen Mfg. Co., Inc.**, a small company making auto parts and supplies, violated the act in using a volume discount plan that favored some wholesalers over others. . . . **Yale & Towne Mfg. Co.** was not guilty of price discrimination in the sale of industrial trucks used in materials handling. FTC says Y&T's quantity discounts and volume rebates have not lessened competition in the industry.



NEW PUSH-BUTTON STARTING ON OUTBOARDS PUTS MAMA IN ANOTHER DRIVER'S SEAT!

Push-button starting has done the very same thing for the outboard motorboat business that it did for the auto industry years ago. It has opened the market to millions of women and young people who can now enjoy this good sport because starting the engine is no longer a problem. The self-starter helped revolutionize the auto business when it opened car doors to women, and it is currently a definite factor in the tremendous growth of the boat business.

At the heart of electric starters for boats is our first and, perhaps, best-known product of all—the Bendix* Starter Drive. In the past forty-odd years we have made 110

million of these wonderfully ingenious devices, and they have helped start every conceivable type of engine countless billions of times. Now they are relegating the starter rope to the relic museum, just as they did the auto crank.

Bendix Aviation Corporation creates, develops and manufactures hundreds of basic components and systems for every type of industry. We'll be glad to send you the brochure "Bendix and Your Business". It is a digest of what we make, the industries we serve, and should give you ideas of how some of our products can contribute to your particular operations.

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This is the famous Bendix Starter Drive—"the mechanical hand that cranks your engine".

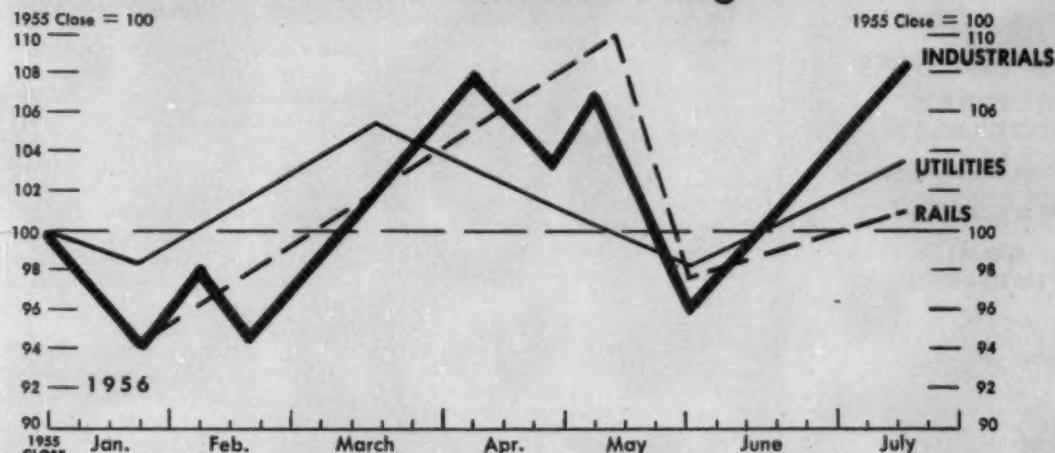
A thousand products



a million ideas

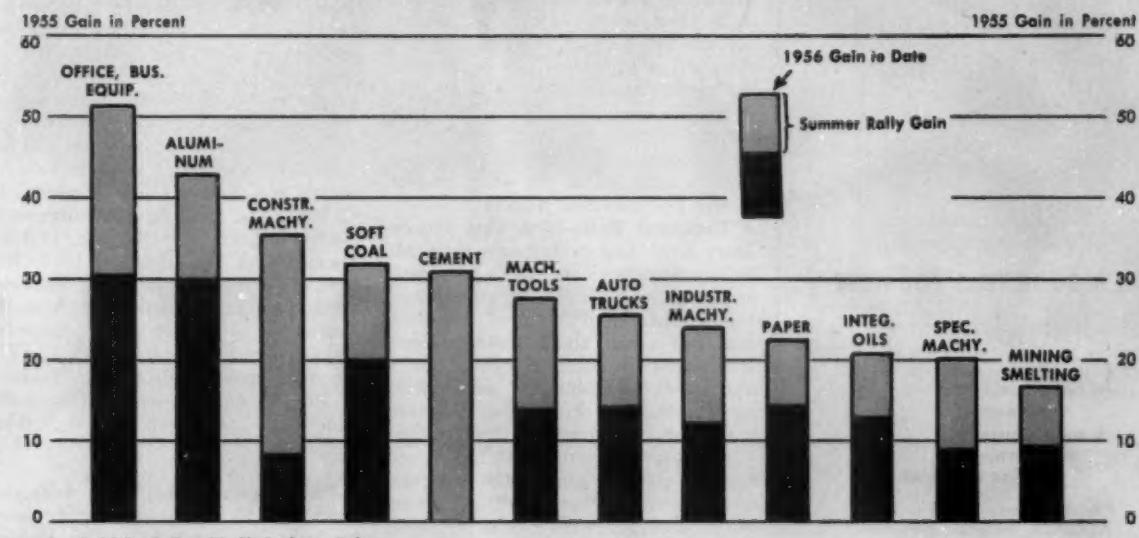
THE MARKETS

SUMMER RALLY RESULTS: Industrials Hit a New All-Time High . . .



Data: Standard & Poor's Corp. Daily Stock Price Indexes.

... Under the Leadership of These Groups



Data: Standard & Poor's Corp. Weekly Stock Price Indexes.

© BUSINESS WEEK

Records Fall, but Bulls Are Wary

The 1956 summer rally has panned out at least as well as its supporters thought it would, and may yet turn out to be much better. Early this week, Standard & Poor's index of 50 industrial stocks perched at a new all-time high: 1.2% above its previous Apr. 6 peak; up almost 9% from yearend 1955; and nearly 13% above its May 28 low.

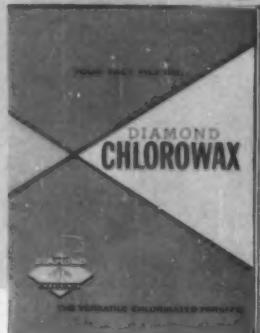
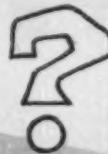
In the flush of the latest bull market ascent, not too many Streeters are getting depressed about the rails' performance

—more modest than that of the industrials—this summer. In fact, the rails this week were only 1.5 over the yearend 1955. They haven't done a thing since they struggled mightily to an early-May highpoint some 10% above yearend, then nosedived in the May slide. Right now, the biggest factor dampening investors' enthusiasm for them is the steel strike. It has hit the rails harder—and faster—than any industry save steel itself.

The usually slower-moving utility index has been outperforming the rails lately, and currently it stands 3.6% above yearend. It has made a handsome 5.6% gain from its May low.

• **Dozen Leaders**—As usual in any sharp bull market advance of recent years, a few top groups have scored spectacular gains, more than balancing the small gains, or even losses, of other groups. As the chart above shows, the leadership in the summer rally has come from

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Chlorowax, DIAMOND ALKALI's versatile chlorinated paraffin, is now being used in hundreds of different products where it not only adds important product characteristics but speeds processing and reduces costs as well. Available in several types of liquid and resinous forms. For information write for new, 36-page, illustrated book, *Your Fact File on DIAMOND Chlorowax*.

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 Bldg., Cleveland 14, Ohio

Diamond
Chemicals



a dozen groups. Most of these are the same groups that have pioneered the market all year.

The top gainer, both in the rally and for the year, has been the office equipment group, up 51.4% since year-end, and just over 30% since the May low. Aluminum ranks second, with gains of 42.9% and 30%. Machinery and building construction groups have been solid leaders, bolstered by the recently passed highway bill as well as record industrial expansion of plant and equipment. Thus construction machinery, cement, machine tools, industrial machinery, trucks, and specialty machinery are all among the leaders. Bituminous coal, enjoying its own little renaissance, and three long-time bull market leaders—paper, integrated oils, and mining and smelting—round out the top dozen groups.

Though it has been spearheaded by those groups, the recent market advance has been fairly broad in terms of individual issues, especially so far this month. On only two out of the first 11 trading sessions this month did more issues decline than advance, and the spread between the number of issues advancing and those declining has generally been pretty wide. Also, trading volume has been stronger this month than at any time since late May, when the market was falling even faster than it has advanced recently. While daily trading volume has been stronger on the upside lately, it still isn't averaging as high as it did in the steep advance of late February and March.

• **Tempered Bulls**—Now that the indexes have broken through their old highs, Streeters are again seriously weighing the possibility of profit-taking and another long period of consolidation not much above current levels. Bullishness is being tempered by a number of considerations, not least of which is the steel strike. Most Streeters, a few weeks ago agreed that a short strike probably would prove a long-run benefit, allowing inventories in some steel lines to be worked off and giving the economy generally a brief breathing spell that might forestall a sag. But some are already uncomfortable now that shortages in a few lines are causing a slowdown of building (page 25).

Also, this week's first earnings reports for the second quarter didn't promise to provide much of a spur to the market. In most cases, they were as expected; some were even lower than anticipated. Striking gains were scored by the steels generally in early reports, but some experienced Streeters are going slow on them now because of the threat of heavily increased labor costs hanging over them. Others, however, think increased prices for steel subsequently will more than offset any such added costs.

Wall St. Talks . . .

. . . about flop of Revlon's secondary offering . . . hold-up of Stevens debenture issue . . . merger denials.

A secondary offering of 47,500 shares of Revlon, Inc., flopped this week. It was withdrawn with 60% of the block still unsold. Reynolds & Co., the Big Board house that was midwifing the deal, says "the market fell away from our offering price" because many traders erroneously believed the block originated with Revlon officials or underwriters who marketed the public offering eight months ago.

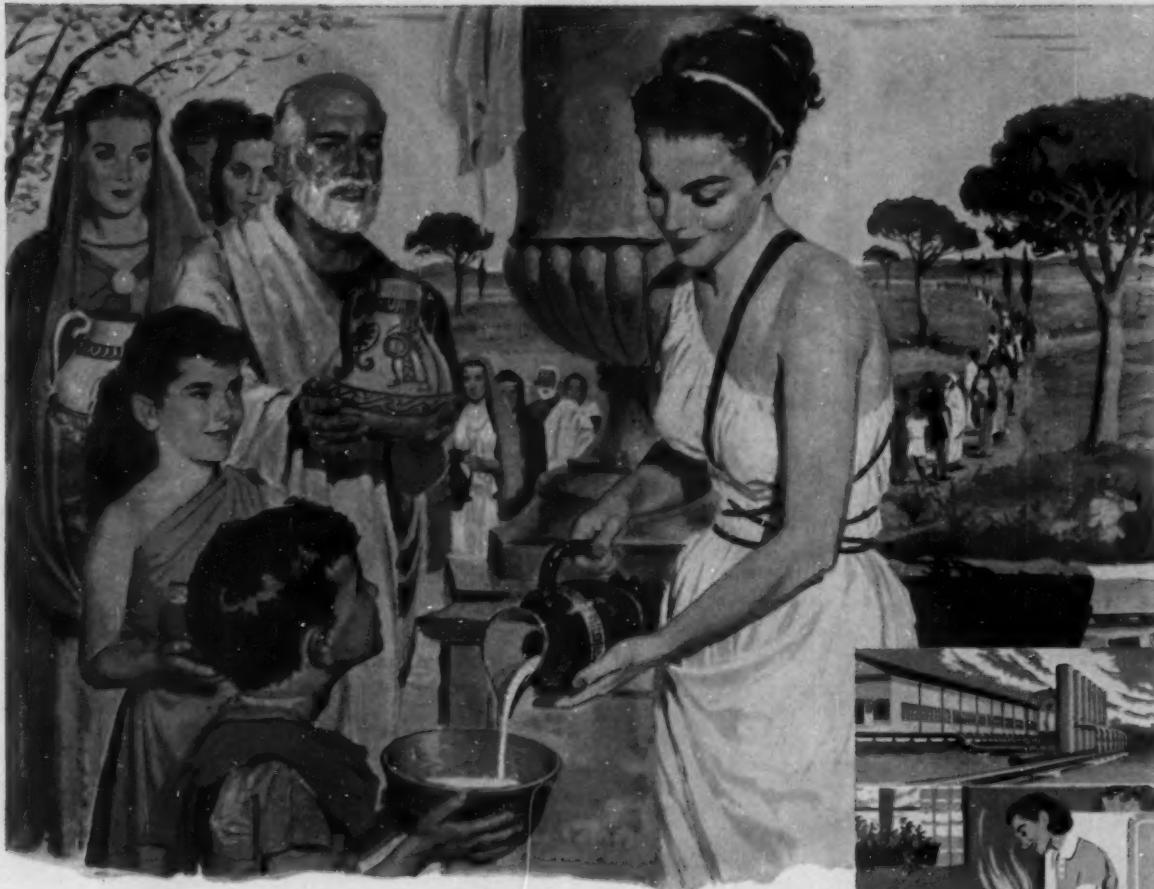
J. P. Stevens & Co., Inc., postponed a \$30-million debenture offering. According to gossip, Stevens wasn't happy about the ratings assigned to the proposed issue (page 109) and found the underwriting terms unsatisfactory.

The differences of opinion that make stock markets are clear in June reports of Lehman Corp., leading closed-end investment trust, and Institutional Investors Mutual Fund, Inc., open-end fund owned by New York savings banks. Lehman's holdings in June favored these stock groups: oil and gas (27% of assets), public utilities (15.6%), metals and mining (12.4%), chemicals (7.3%). The bank fund favorites were: electric utilities (16.32%), oils (14.4%), chemicals (8.5%), drugs (8.3%). Biggest holdings of individual common stocks were: by Lehman, Amerada Petroleum (7.8% of assets), Superior Oil (3.6%), Reynolds Metals (2.5%); by the bank fund, Mead, Johnson (2.7%), General American Transportation (2.6%), Firestone Tire & Rubber (2.5%).

Merger rumor denials: An Anderson-Prichard Oil Corp. spokesman claims no talks have been held with Phillips Petroleum. . . . Delhi-Taylor Oil Corp. officials deny knowledge of any plan for merger—though they admit they can't speak for their controlling stockholder, the Murchison interests.

Life insurance companies still go slow on stock-buying. Through July 6, stock purchases accounted for only \$79-million (1.1%) of new investments by 40 major life companies, compared with \$139-million (2%) a year earlier.

An omen? Last week a Big Board seat sold for \$90,000—\$15,000 below the last previous sale. That's the sharp est sale-to-sale price decline in 19 years.



PLenty for All...

The pitcher in the legend never ran dry. Natural gas is like that.

Each year, we use more than the last . . . yet end up with more than before.

For gas discoveries continually exceed use.

The United States has vast reserves underground. Canada and Mexico as well. Still more gas has been found offshore under the waters of the Gulf of Mexico—the great potential.

As America needs more of nature's finest fuel, Tennessee Gas, the nation's longest pipeline, will deliver it.

**TENNESSEE GAS
TRANSMISSION COMPANY**

AMERICA'S LEADING TRANSPORTER OF NATURAL GAS

HOUSTON, TEXAS



Millions of American families cook with natural gas. And its precise, easily controlled heat makes it a superior fuel for industry.



Map indicates some of the industries financed through the teamwork of Northwest banks and First National City.

Power pulls industry to the Northwest

Region's growth spurred by natural gas, hydroelectricity...and bank teamwork

The spirit of Paul Bunyan is on the march again in the Northwest. New industries are coming in: chemicals, atomic energy, aluminum, oil refining. Older ones—lumber, fishing, paper, airplane manufacture — are expanding. Population is growing at twice the national rate.

Behind this great growth are vast natural resources, including almost limitless power: the Columbia River network, with its huge dams and $\frac{1}{2}$ of the nation's hydroelectric potential, and billions of cubic feet of natural gas from Canada and the Southwest.

Putting power and resources to work has taken money, big money, from investors all over America, and from banks. The Northwest's fast-growing banks are playing a vital role in the

region's growth, supplying credit and financial leadership to meet expanding needs of manufacturers, distributors, consumers, and farmers.

When money needs are big or specialized, Northwest banks, like others the country over, often invite The First National City Bank of New York to join hands with them. This brings the Bank's resources of nearly \$7 billion to the scene . . . and also specialists who can provide financial and technical counsel in diversified industrial fields. First National City's officers know the

Northwest, visit it often, understand its potential.

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PERSONAL BUSINESS

BUSINESS WEEK
JULY 21, 1956



The idea of owning property jointly with your wife looks deceptively attractive. For one thing, nothing could be easier to set up. For another, joint ownership automatically insures that the surviving spouse becomes sole owner.

These facts tempt many a busy executive into believing that he has an ideal and foolproof system right at hand to provide for the future of his wife and children in the event of his death.

Unfortunately, joint ownership is generally anything but foolproof over the long pull. All too often, it brings unforeseen developments that can cost your heirs money, unpleasantness, and grief.

One effect can be heavy taxes—even though the tax law isn't so tough as it once was. For example: Say a man and his wife jointly own property worth \$300,000, all of which was contributed by the husband. He dies, and his wife becomes sole owner.

Because of the marital deduction (BW—Mar. 31 '56, p173), his widow gets \$150,000 of the property tax-free. The tax on the remainder is \$17,500.

So far, not so bad. But assume the widow doesn't remarry. That means that when she dies there will be no marital deduction. Assume further that she survives her husband by 10 years or more, and preserves the full value of the property she inherited.

In that case, her children will have to bear a tax of nearly \$55,000—a total tax on the original \$300,000 of nearly \$72,500.

That's nearly \$37,000 more tax than would have to be paid if other methods of estate planning had been used.

Even more deceiving is the fact that jointly owned property can eventually go to people you don't want to get it. For example:

A married man puts practically all the property he has acquired and earned in the names of his wife and himself. The couple has no children, but the husband's parents are partly dependent on him.

An accident to the couple kills the husband immediately. His wife becomes sole owner of the property. In a few weeks she dies from the effects of the accident. Since the property is now entirely in her estate, it all goes to her brothers and sisters under that particular state law.

Probably both the husband and wife would have wanted the dependent parents to receive at least part of the property. **But the survivorship feature of joint ownership is rigid.** It left no recourse from an unfair and undesired distribution.

Another big trouble with joint ownership is that it deprives the widow of the advice and counsel that her husband can furnish to her at this critical time. Often the widow has no real knowledge of her husband's estate—and very likely not enough knowhow of financial management—to operate it to her own advantage.

Thus there may be no way for the widow to know why her husband made certain investments, for instance. She may decide on her own—or on the advice of well-meaning people—to get rid of some of them to put her money to better use. The upshot can be that what her husband intended for her to live on comfortably is quickly dissipated.

All this adds up to one clear fact: While joint ownership is a con-

PERSONAL BUSINESS (Continued)

BUSINESS WEEK
JULY 21, 1956

venient—and often useful—tool for immediate and short-term family financial arrangements, it can have disastrous long-range effects.

Remember that the best way to control your estate is a program of estate planning. For where joint ownership means absolute, fixed disposition of property, an estate plan can be devised to meet all sorts of unexpected events.

Put another way: You can direct exactly where you want your property to go; when it is to go; how it is to go; all at the lowest cost to your beneficiaries. As a joint owner, you may have no say at all.

—•—

It's not entirely the responsibility of your hostess to see that you have a good time as a weekend guest; you should do your part. Here is what etiquette experts suggest as the best way to be assured of a "repeat" invitation.

Make sure you are clear about the time limits of the invitation (expected arrival and departure) as well as the weekend activities. This can help in deciding about the kind and amount of clothing and equipment to take. If there is any question, it's better to ask outright rather than to arrive unprepared.

Even if there is domestic help around, keep your own room tidy. Offer to help, both in the preparation of meals and in the "cleaning up" process. Note: Tipping of domestics has become an accepted procedure; for each servant, \$3 is suggested as minimum for a single guest to give, \$5 or a couple. But use your own discretion here; some help are practically members of the family, and such a tip would be considered an insult.

Adaptability is a big asset—so join in the weekend events willingly, even if they include something you don't particularly enjoy or have an interest in. And leave your business and family problems at home.

It's best to bring a weekend gift with you; if there's not enough time to select one beforehand, send it immediately after your visit.

(A new book or phonograph record is always in good taste.) Also, write your bread-and-butter letter as soon as possible—within a few days.

—•—

Note for your calendar: The quarterly installment of Social Security tax for domestic help is due July 31.

—•—

Here's a good summer punch recipe originating from Jack & Charlie's "21" in New York. To one quart of champagne add: two pones each of brandy and Cointreau, juice of one orange and two lemons, one pint of soda water, powdered sugar to taste.

Garnish with slices of fresh pineapple and peaches, and other fruit in season (raspberries, blueberries, blackberries, strawberries); sprigs of fresh mint and slices of cucumber rind, cut lengthwise. Pour into a large bowl over block of ice.

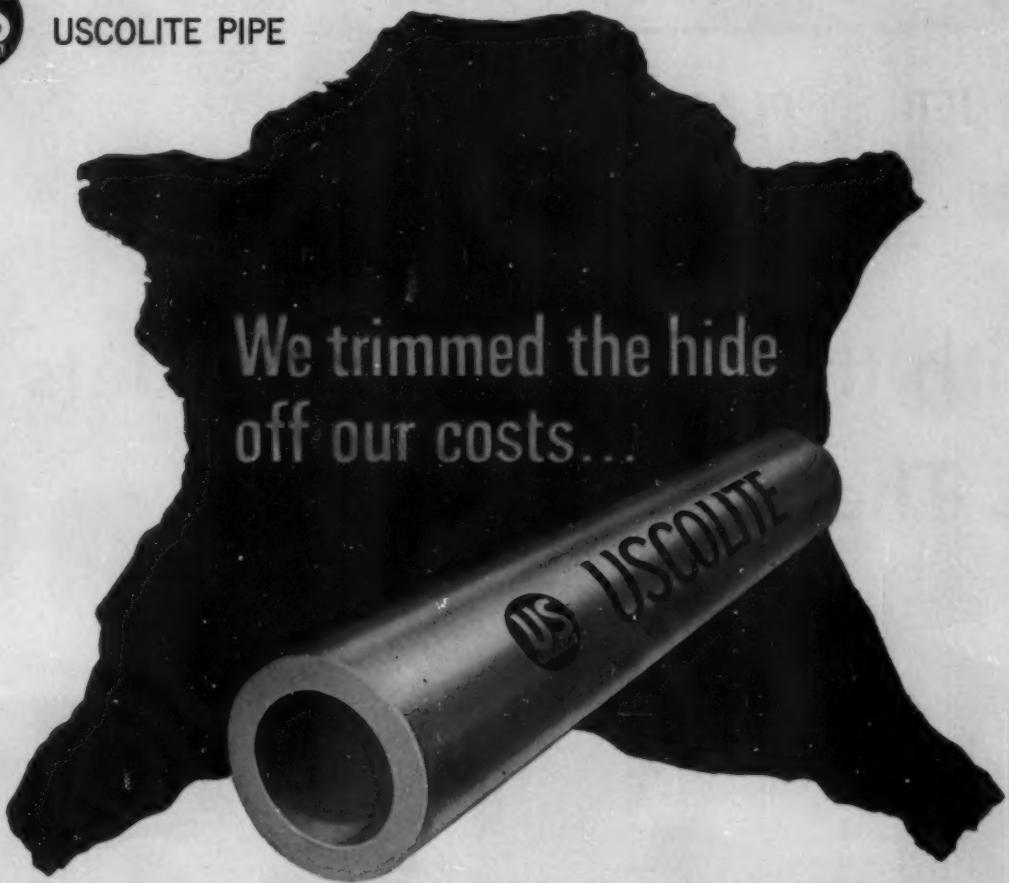
—•—

A sudden thunderstorm may catch you completely off guard. First step, as protection against lightning, is to get under a shelter as quickly as possible. The larger the building, the safer you are. Stay away from: trees (especially isolated), metal objects and pipes, exposed objects projecting upwards, and open areas (golf courses, gardens, beaches). If driving, stay in the car.



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Rarely can you find a more corrosive environment than that of a tannery. For instance, pipes in one large Minnesota tannery (carrying salt, sulfuric acid, alkali, hard water and chrome liquor) became corroded and had to be replaced frequently, some as often as every week. Also, there was the constant hazard of dangerous chemical leaks. A piping break always damaged the floor, often stopped plant operations.

Then, 2 years ago, they ordered \$450 worth of Uscolite® Pipe. Result: savings of \$10,000 in just one year.

"In all that time," says the tannery manager, "the Uscolite Pipe has shown no sign of wear, even though in use 24 hours a day, 6 days a week. We're ordering more and more of it for use throughout the plant."

Uscolite plastic pipe is extremely light in weight, yet has very high impact strength. It is resistant to corrosive chemicals and is non-contaminating. The Uscolite line includes everything for a complete pipe assembly, including the Hills-McCanna Valve. Contact any of the 28 "U. S." District Sales Offices, any of the selected "U. S." Distributors, or write us at Rockefeller Center, New York 20, New York.



After 2 years on the job, note the smooth, unharmed exterior of Uscolite Pipe (at left) while metal pipes are heavily corroded.



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With the Whoosh of the Jets The Airlines Grow Up



When big . . .



. . . jet airliners . . .



. . . take to the air . . .

A YEAR ago the commercial jet age in the United States dawned.

On June 7, 1955, a directors' meeting of Douglas Aircraft Co. instructed Donald Douglas to go ahead and build America's first passenger jet. And just over a month later, the U. S. Air Force told Boeing Airplane Co. it had no objection to Boeing's building commercial jets concurrent with military production.

Today, with a speed that has surprised even the experts, these large fast passenger planes are definitely and inescapably on the way.

So far, 242 of them have been ordered by the world's major airlines from three American makers, Boeing, Douglas, and Convair Div. of General Dynamics Corp. Deliveries should begin late in 1958 and continue through

1961. And this, industry observers now predict, will be only the first wave.

• **Billions Already . . .** —Airlines have committed over \$1.5-billion for these planes, plus spare parts. They'll have to invest millions more in accessory equipment, training, maintenance bases, and merchandising before they can begin to fly them and reap profits from them.

Expenses won't end there. Taxpayers and investors will be called upon for additional billions to finance new and bigger airport facilities. The airfields themselves will have to be enlarged. Even today, during peak periods at a few of the nation's busiest airports, there isn't room on the ground for all the planes wanting to take on or discharge passengers. Terminal facilities are already badly overcrowded. When the jets come in they'll be carrying



... there'll be no room for wrong solutions to the airlines' slew of knotty problems.

bigger loads than the largest of today's commercial airliners. Confusion and delays in the passenger terminals will get much worse unless they, too, are enlarged.

... And More To Come—More billions will be needed for construction and operation of complex electronic gadgetry to control the heavier, faster-moving air traffic. Already, inefficient control of air space leads to four near-collisions between commercial airliners each day, according to a recent survey of U.S. airline pilots. In a quarter of these near-misses, the aircraft pass within 100 feet of each other. This danger will grow worse when jets double the speed of commercial airline flights—unless methods of controlling them are improved.

Almost since the beginning of passenger flying, aviation's rate of growth and the load it puts on ground facili-

ties have consistently been underestimated. The jets now on order are so large and so fast that if facilities to handle them aren't improved and enlarged, chaos may well result. Some think chaos is inevitable.

I. The Jet's Big Goal—Economy

Why are airlines buying these costly and radically different planes, when with them they're getting operational and financial headaches? The answer is that the advantages of the jets are so great and that commercial aviation is so competitive that the big well-entrenched airlines can afford to buy them, and the smaller trunk lines can't afford not to.

One airline executive recently quipped: "It's a case of

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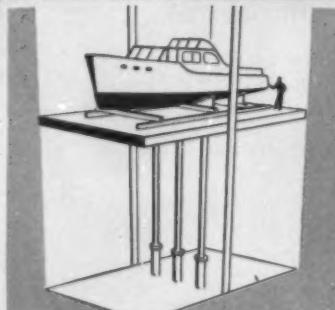
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possibly going bankrupt if you do, and certainly being swallowed up if you don't."

Speed is the foremost of the jets' advantages. The Boeing and Douglas jets are capable of cruising between 550 mph. and 600 mph. That's 200 mph. to 250 mph. faster than today's piston engine transports. The smaller Convair jet reportedly will fly at 607 mph.

The jet's higher speed will increase each plane's revenue. Because each jet flies faster it should be able to fly more frequently. While one of today's planes is making two Atlantic crossings, for example, a jet could make three.

But this is just one way of increasing revenue with jets. A jet will cut almost in half the time it takes to fly across the U.S. Airline executives are convinced that vacationers and businessmen who might not make the trip today can be expected to make it in 1961. Certainly many people who wouldn't have flown across the U.S. five years ago are making the transcontinental air trip now.

Douglas has even suggested to airlines that weekends in Paris will be a selling point when the Douglas DC-8 is flying. The attraction, says Douglas, is that a flight leaving New York at 8 p.m. Friday night would arrive at Paris early Saturday morning; would leave Paris at 10 p.m. on Sunday and, because of the time differential, would land in New York at 11:30 the same night.

As travel becomes easier, then, airline executives are confident more people will travel.

Jets have a greater range than today's airliners. Manufacturers claim the larger, intercontinental versions of their two planes will be able to fly with a full payload and normal fuel reserves more than 4,000 miles. By comparison, today's Douglas DC-6B has a range of about 3,500 miles.

Eventually, when and if international airlines are equipped entirely with long-range jet airliners, costly mid-flight fueling bases can be closed.

However, the first of the jet airliners will not have so great a range as the piston-engine aircraft now being introduced to commercial runs. Douglas' DC-7C, the first of which went into transatlantic service last month for Pan American World Airways, has a range of 4,800 miles. And Lockheed Aircraft Corp. has a super Super-Constellation, designated 1649A, capable of flying 6,300 miles. The reason the first of the jet series won't match the range of what is probably the last of the piston-engine series is that the jets burn fuel in prodigious amounts, especially at low altitudes.

The jet airliners will be bigger than today's commercial planes. The biggest of present four-motor planes can seat up to 90 or so tourist passengers. Boeing

advertises that its overseas jet, the Intercontinental 707, will seat at least 146 passengers in tourist configuration and, by squeezing, airlines can probably fit more.

The true importance of this can be seen by a pair of facts issued by the International Civil Aviation Organization.

- A single large jet will have approximately the same annual transatlantic passenger-carrying capacity as a 40,000-ton ocean liner such as the *Île de France*.

- Twelve of these aircraft, it is estimated, could handle all today's air traffic over the North Atlantic.

Though a jet will burn far more fuel than one of today's planes, it will burn a less expensive type of fuel. The airlines haven't decided on a standard jet fuel yet, but experts are agreed it won't be too distant from kerosene. By comparison, piston-engine planes burn costly high-octane aviation gasoline.

- **Cheaper Operations**—These advantages could and should add up to one basic thing—economy. Jets will enable the airlines to fly more passengers, more often, at less cost per passenger mile.

Even before the DC-8 was off the drawing boards, Douglas said: "It can produce 2.5 times as many passenger miles, 2.5 times as many ton miles, 3

times as much gross profit, and 1.25 times as many ton miles per dollar invested as the latest four-engine airplanes."

Boeing claims for its smallest domestic jet these direct operating cost comparisons: On flights ranging from 1,000 miles to about 3,500 miles, the 707-120, with 109 seats, will cost roughly 1.8¢ a seat mile. Today's modern piston-engine transport for the same range costs over 2.5¢ a seat mile. A seven-year depreciation period was figured for both planes.

- **Upheaval Ahead**—For all the advantages that airlines expect to get from the jets, they'll create an upheaval, a predictable chaos, when they begin flying.

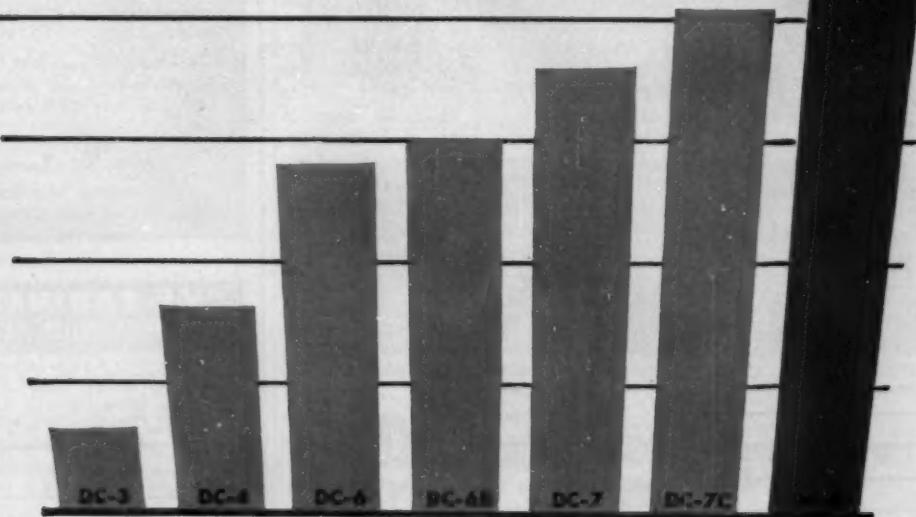
These periods of upheaval due to lack of preparation in one field for swift advances in another aren't exactly unfamiliar in U.S. economic history. For decades there has been the example of the auto industry and the highways. Detroit has kept turning out cars by the millions every year; at no time has the highway system been capable of carrying all these cars without traffic jams, confusion, and much accidental bloodshed.

The upheaval that's bound to come with the advent of the jets needn't run wild. The U.S. has two or three years



Passenger Miles: the JETS Will Produce More

A plane's earning capacity is based on the number of passengers it can carry times the number of miles it can carry them in an hour. Here's how the DC-8 will compare to earlier Douglas planes:



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Special Report

JET PLANES

Story Starts on page 156



to prepare for the jets' entry into regular commercial flying. The airlines are hoping that the airports, the control systems, the terminals, and the whole method of getting passengers and their baggage into and out of airliners can be prepared so they will at least begin to cope with the jets' demands. Since the airlines are putting billions of dollars into the new planes, they're determined to do all they can to see that their investment isn't wasted through lack of preparation on the ground.

Already, well before the jets are in large-scale production, the airline executives have worked out a major change in their method of doing business—to take care of just one of the demands that the jets make.

II. Paying the Bills

This change has come in the airlines' financing methods, and it has been forced on them by the fact that these radically new airplanes carry radically high price tags.

• **Climbing Costs**—The Douglas DC-3, which, more than any other airplane, put airlines in the passenger-hauling business, cost about \$125,000 when new. It flew 180 mph., had a range of 500 miles, and carried seats for 21 passengers.

As Douglas stretched out its DC series, it was also obliged to raise the price tag. The postwar DC-4, seating 44 passengers, cost \$475,000, flew 220 mph., and had a range of 2,600 miles. The DC-6 went for \$860,000 and the DC-6B went over the million mark with a \$1,175,000 tag. The 6B flies 315 mph., has a range of approximately 3,500 miles, and seats anywhere from 50 in its first class over-water version to 80 in domestic tourist service.

The first DC-7 cost about \$1,850,000, while the DC-7C has raised the price of big piston-engine planes to \$2,233,000.

The jet, however, leaves even the highest of these figures far behind. The DC-8s and Boeing 707s now on order will cost from \$5-million to \$6-million each, with spare parts. The question is how to pay for this equipment.

• **The Old Way**—In the past, equip-

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ment was paid for out of reinvested earnings, cash accumulations from fast depreciation and tax amortization certificates, equity financing, and short-term bank credits. Even the latter were liquidated rapidly out of earnings. Only infrequently were these methods supplemented by long-term debt, and then the maximum term was 20 years.

By these methods most airlines have been able to keep up in the equipment race.

• **Time for a Change**—But these methods won't do any more. The jets, the necessary facilities to handle them, plus nonrecurring items such as pilot training, will be too costly, too steep a jump to handle by old financial policies.

Even selling many of today's piston-engine airplanes won't provide the funds the airlines need for the capital expansion that jets demand.

The airlines have had to borrow long before they're able to start flying the jets they've ordered because airplane manufacturers must get progress payments from the airlines.

This forces airlines to borrow heavily against future earnings. More important, management must commit millions of borrowed dollars to buy planes whose earnings can still be figured only from slide rule computations, not from flying experience. When most of the orders were placed, Boeing, Douglas, and Convair were still very much in the design stages of their jet aircraft.

If airlines had gone to banks and insurance companies a few years ago and asked to borrow for an equipment purchasing plan of this nature, money would not have been so readily available.

• **Investment in Future**—Today, however, this situation is changed. The major lines with the biggest jet buying plans have had little difficulty in arranging big loans for terms up to 40 years at rates comparable to older, less volatile industries.

It has been easy because airlines have convinced the big lenders that theirs is going to be the mass medium of transportation. Jets for long hauls and some medium hauls, turbo props for short and medium runs, steeply-rising and vertically-rising aircraft and helicopters for inter-urban and commutation service—all these are either in use today or just over the horizon.

Travel by air is due to become so quick and easy, everyone will fly. That means commercial trunk airlines, or the ones that survive the inevitable growing pains, should become huge companies. That, in turn, means they need and can support long-term debt.

• **How They Do It**—Here's how some bigger carriers are financing their jet equipment purchases:

United Air Lines. Three insurance companies—Prudential Insurance Co. of America, Mutual Life Insurance Co. of

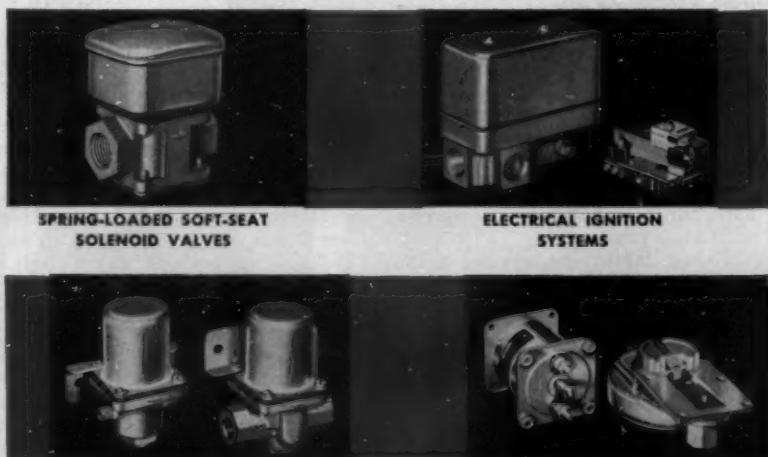
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Story Starts on

JET PLANES

page 156

New York, and Metropolitan Life Insurance Co. will buy up \$120-million of 4% debentures, as needed. A syndicate of 38 banks headed by First Nation City Bank of New York is making \$30-million credits available until Dec. 31, 1960. The debentures are to be paid off in 1981, and the bank credits over a five-year term, after being drawn.

Eastern Air Lines. Equitable Life Assurance Society is providing Eastern with \$90-million at 3.75% interest. Eastern has already drawn the first \$50-million to retire short-term debts and make payments on new aircraft. The remaining \$40-million will be applied as needed to Eastern's purchase of 40 Lockheed Electra turbo prop airplanes. None of the Equitable money is going for the Douglas DC-8s that the company has on order. When advance payments are due for these, Eastern will use bank credits or seek additional insurance money.

American Airlines. Metropolitan Life is advancing American \$75-million. Sinking fund payments won't begin until 1967, long after the heavy commitments have been made and the planes are bringing in income. The entire note, which is at 4%, is not due until 1996.

Smaller domestic trunks and foreign airlines aren't being left out in the cold, either. Many banks, insurance companies, and investment bankers have either lent money or expressed willingness to do so.

Though the jets are expected to earn more per passenger mile than today's planes, these increased earnings won't begin until at least 1959. Meanwhile, airline management must continue paying off its present-day equipment besides paying for the jets. And later, when the jets are flying, fast depreciation won't be possible. Most airlines today write off their planes in five to seven years. Expectations are that jets will have to be depreciated over at least 10 years.

• Pinch for Stockholders—All this means that financing needs have soared. And, just as stockholders—having "starved" for years as airlines raced to keep up with the latest in planes—were

ready to sit down to a banquet, the dining room doors have been slammed in their faces.

Whether the airlines can meet the terms of the loans they have negotiated for their jet transports depends on all that follows—on whether airports can be enlarged fast enough to handle the heavier loads and more frequent trips of the new planes, on whether air traffic control can be improved fast enough for them to get full service out of the jets, and on whether there'll be sufficient passengers to fill the big new planes.

• When Trouble Comes—But now that the big lenders of the U.S. have underwritten them, the larger airlines are hardly likely to be put out of business for failing to meet the terms of their loans for a year or two while their managements search for solutions to the major problems raised by the big changes that are coming in the air transportation business. Some smaller airlines might be badly hurt; some might even be forced into bankruptcy. The industry as a whole, many observers say, can't suffer.

Even the smaller airlines may survive. This depends first on the speed with which new airport facilities are built.

III. Getting Airborne

Airline managements and stockholders are less directly concerned in the financing of new and expanded airports than are local governments.

Most airports are too small already. In the jet age, they'll be hopelessly inadequate. They're too small now—and almost always have been—because aviation's rate of growth and the load it puts on ground facilities have consistently been underestimated. You don't have to look too far back to find some striking examples of this.

• Low Forecasts—The Port of New York Authority, responsible for operating the city's four airports, forecast in 1950 that by 1955 domestic airlines would be flying a total of about 11-billion passenger miles; and by 1965, some 16.7-billion passenger miles. But by 1955, the actual figure for domestic trunk airlines was 19.9-billion passenger miles.

More recently, St. Louis this spring completed a shiny, new, expandable terminal. At the opening ceremonies came this statement: "The building was designed to handle traffic volumes until 1960. Preliminary steps have already been taken to expand the structure because present indications are that traffic will reach that amount . . . this year."

Outgrown airports—notably Midway at Chicago, La Guardia at New York, and National at Washington, D. C.—irritate the customers and hit the airlines in the pocketbook. Delays in land-



One problem for the jet age: ensur-

ing and taking off, out-dated loading and fueling procedures, and even the simple shortage of ramp space cut into maximum use of airplanes. When the bigger, faster, more expensive jets are in service it will be imperative that

"Ya said it would leave half an hour ago."





ing that current crowded chaos in airport terminals (above) is ended, not aggravated.

nonproductive ground time be cut to a minimum.

• **Fast Fueling**—Plane makers have kept this in mind when designing the aircraft. All jets are expected to use under-wing fueling, for example. The DC-8

can have its 18,538-gal. capacity tanks filled in 16 minutes. Different doors for passengers, food, and cargo will speed servicing. But these steps won't fill the bill if new thinking isn't given to modernizing airports and airport facilities.

One group working on this problem sees a solution in trying to bypass airport terminals as much as possible. Jets burn so much fuel even in taxiing that it may prove more economical to leave them at "servicing stations" near the

"Two flights canceled by rain, now how do we fit them in?"

"That's my bag. C'mon, I got a schedule . . ."



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Special Report

JET PLANES

Story Starts on

page 156



ends of runways. Passengers could be driven in buses direct to planeside from downtown locations.

Instead of fueling planes from gasoline trucks, which add to ground confusion at airports, jets would roll up to hydrants connected to large underground storage tanks.

• **Take-Off**—A frequently more important consideration with today's too-small airports is runway length. To get off fully loaded, the biggest Boeing and Douglas jets going for extreme-range non-stop flights will need longer runways than are generally available today. These jets will weigh almost 300,000 lb. when loaded to the limit with passengers, baggage, and fuel.

At that weight, they'll need 9,000-ft. for take-off (when flying from an airport at sea level when air temperature is around 50F). For safety, runways would need to be almost 10,000-ft. long. Runways at only a few of the nation's major airports can match the jets' take-off needs under these conditions.

Boeing and Douglas both say, however, that their big jets will not be loaded to maximum weight at take-off so long as they're flying routes that are flown today. For a direct New York to London run, for example, the Douglas and Boeing jets would leave New York with considerably less than maximum weight aboard, their makers say.

Convair's Golden Arrow, a jet designed for shorter flights, weighs much less than the Boeing and Douglas monsters. It will be able to operate from runways on which the DC-3 could take off—about 5,000-ft. long.

• **Supplementary Routes**—Eventually, runways at airports other than major ones may well have to be lengthened to take care of the heavy jets. As air travel increases, more demand for non-stop long-distance routes is likely to be generated in smaller cities with smaller airports. Just as some U.S.-to-Europe flights now originate in California (for the polar route) and in Chicago, so later in the jet age there may well be enough demand in the Southern states for flights to Paris to warrant a direct service from, say, Atlanta. Domestically, direct flights between such places as

Pittsburgh and Los Angeles, or Norfolk, Va., and Tacoma, Wash., may eventually be needed to handle the growing traffic. And many such flights would require that airport runways be lengthened.

Though runways may not have to be lengthened everywhere, the increased size and speed of the commercial airlines' new planes, plus the yearly growth of airline traffic, still mean that most airports must be expanded. And that means that the public pocketbook must be tapped.

• **Jet's Voice**—Generally, city airports are controlled by quasi-political bodies sensitive to public opinion. If these authorities are to sell bonds for airport improvement, and if the federal government is to match these funds with taxpayers' money, the communities near the airports must at least accept, if not welcome, the jet age.

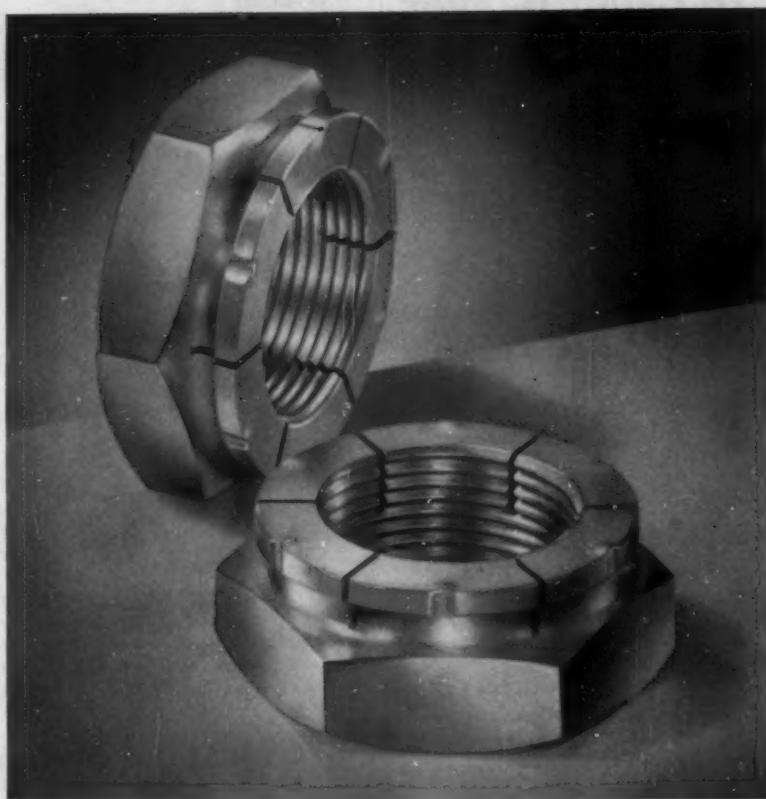
It's certain that communities won't accept living in close proximity to the new planes unless something is done about the jet engine's roar.

Cutting down the jet's voice is a management problem for airlines and manufacturers alike. It was spelled out years ago by Donald Lowe, chairman of the Port of New York Authority. He told airlines that jets would be refused permission to land at New York's airports unless they were quieted. Last October, when Pan American World Airways signed the first contract for American-made jets (BW—Oct. 22 '55, p32) Lowe said: "It would be just as useless to design planes that cannot be operated into and out of metropolitan airports because of excessive noise or performance characteristics as it would be to design planes that cannot fly."

• **Approach**—You can be sure that the world's airlines aren't spending more than \$1.5-billion for airplanes that can't land at New York. Current expectations are that silencers will reduce jet noise to about the same as that of the noisiest of today's commercial four-engine airliners. Most if not all contracts for jets have specified the maximum number of decibels the jets will generate. It's the aim of the engineers working on the silencer problems to raise the pitch of the jet engine's roar—for high-pitched noise dissipates rapidly over distance.

Assuming the noise problem is licked and the public will be willing to pay to expand airports, airfields must be modernized to handle the increased number of planes and passengers efficiently. Most fields, barely caught up with the piston-engine plane, will have serious traffic problems—pedestrian, vehicular, and airborne—if they don't gear themselves to the jet.

Nobody knows what all the solutions are going to be—they don't even know yet what all the problems will be. But

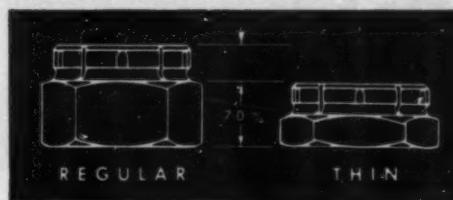


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Special Report



Story Starts on page 156

airlines and airports are working together to discover the problems and find the answers to them.

IV. Safety in the Air

No matter how serious the airport problems might be, they won't hold a candle to those that will arise in the air if something isn't done to improve the control of air traffic.

The nation got an alarming reminder of the deficiencies of the present air traffic control system earlier this month with the collision of two airliners over the Grand Canyon. For years, experts in the field had been dreading just such an accident. Last winter, a government-sponsored aviation facilities study group took a look at the control system and reported: "It is impossible for a pilot to fly a high-speed modern airplane effectively without almost continuous reference to his cockpit instruments. Hence, under the best conditions, even if the pilot is alert he may not be looking out of his airplane when a mid-air collision is imminent.

Time and motion studies show that it takes about seven seconds for a pilot to change the direction of his plane after he sees an object that he must avoid.

"When the pilot of a jet flying at top speed sees a speck on the windshield which is an oncoming plane about one mile away, it is already too late to take evasive action, because four seconds later the oncoming plane will be upon him.

"Since 1950 there have been over 65 mid-air collisions involving civil aircraft in the U. S., resulting in heavy loss of life and equipment. Fortunately so far, none has been between two of our largest transports when fully loaded.

"At present, we are continuing to fly more aircraft faster, higher, and more and more often with what appears to be a casual disregard of the hazards involved. We are, as several industry and government officials told us, 'flagrantly defying the law of averages.'"

• **Crowded Air**—This report was submitted on the last day of 1955. During that year, according to the Civil Aeronautics Administration, U. S. com-

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See Clues on Page 170

mercial airlines had a fleet totaling some 1,500 planes, which flew approximately 3.3-million hours. During the same year, an estimated 58,000 private or business-owned airplanes flew 9.5-million hours. And that wasn't all: Using the same air was the military.

Over the next 20 years government officials estimate there will be a 30% increase in the number of active aircraft. Even this figure appears to be conservative. The Aircraft Industries Assn. reports at least 6,000 private and business planes will be delivered this year. Topping that, each plane is expected to spend more time in the air.

With only so much air space to go around for everyone, it's clear that more control and, therefore, better use of air space is essential.

• **Universal System**—But this presents a tough problem. An over-all system must eventually be devised to guide planes and keep them apart—automatically. This system must be economical so airlines and private pilots can afford to put the equipment in their planes; it must be acceptable to everybody including the military, the world's commercial airlines, and private pilots; and it must be capable of handling planes whose flight characteristics range from helicopters to 1,000-mph. jets.

Nobody expects such a system to be developed by 1959 when the first commercial jets should begin flying. Instead, CAA is racing to discover what combinations of radar, position indicators, vastly speeded-up communications, and other gadgetry that's already available can be patched together into a smooth working combination to meet the jet age's early needs.

At the same time, studies are beginning under the direction of Edward P. Curtis, a former Air Force general who is an official of Eastman Kodak Co. Curtis' group is studying what the needs of the aviation industry will be in 10 to 20 years. Once these have been determined, it will be possible to start building to meet these needs.

The job is a big one. The essentials of today's traffic control and navigation systems were installed in 1935, in time for the 180-mph. DC-3.

• **How It's Controlled**—At 26 air traffic control centers in the U. S. the business of shepherding airplanes through the crowded airlanes goes on in a state of nerve-wracking pandemonium. Each time a plane sets off to fly by instruments along any part of its course, it must file with the nearest air route traffic control center a flight plan listing its course, speed, altitude, estimated time of arrival over various check points, and a mass of other data.

All this data is kept on a slip of paper at the center. The slip is handed from one controller to another—in some



Gene Mahany, center, Work Methods Supervisor, and Jerry Thole, right, Store Manager of the Kroger Company, discuss time-saving features of sound-powered telephones with Don Gobright, left, Graybar Salesman.

Sound-powered telephones from Graybar help supermarket keep displays fully stocked

Keeping display bins completely stocked is a constant problem with large grocery chain units. Now the Kroger Company, one of the country's five largest retail corporations, has established a "first". Kroger uses telephone inter-communication to increase efficiency and movement of stock.

Through Graybar the Kroger Company has installed U. S. Instrument sound-powered handsets, equipped with 25-foot retractile cords and plugs. Receptacles are located on 50-foot centers throughout the sales and stock storage areas. Instead of using the old pad-and-pencil tabulation, the clerk plugs his telephone handset into one of the outlets along the gondola side he is serving. He calls his orders back to another clerk in the stockroom where merchandise is stocked in bays which correspond with the display island out front. Both clerks move from item to item, discussing any problem that may arise with complete understanding. Thus, the bins are kept filled and customer service is improved.

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The President takes a second look

"As I see it, then—" the President began ticking points off on his fingers "—the customer's credit rating is in a low bracket. Under the terms of our policy with American Credit Insurance, this gives us a relatively low coverage. This, in turn, doesn't warrant our shipping the order. Is that right?"

"That's right, sir." The Credit Manager replied, with assurance. "You see, in the policy, a schedule of ratings and coverages is established. A certain rating—a certain coverage. It's automatic."

"Then why," the Sales Manager demanded almost truculently, "do we have credit insurance at all?"

"Accounts Receivable," said the Treasurer, "represent our second largest asset. We want to protect it. Credit Insurance keeps our loss ratio low."

"That's true, sir," the Credit Manager put in. "We have decreased our loss ratio these last few years through our coverage by American Credit Insurance. And up till now," he couldn't suppress a note of bitterness as he glanced at the Sales Manager "—we have been able to increase sales in areas we couldn't have touched before."

"Yeah," the Sales Manager said, "but what it comes down to is that we lose the order. I say we ought to take a chance!"

"It's not a chance. It's a gamble," said the Treasurer.

"That settles it." The President put a real note of regret in his voice as he finished: "Since we can't take the chance, we'll have to lose the order."

"It's almost time for the Board Meeting. We'd better go," the President said ten minutes later. "Most of the others will be there by now." He held the office door as he and the Treasurer filed out. "What do you think of those two?" he asked as they walked down the corridor.

The Treasurer smiled his neat little smile. "A good Sales Manager's got to be willing to gamble. A good Credit Manager's got to be willing not to. It takes courage for both."

He pushed open the Board Room door, then both men turned as rapid footsteps echoed in the quiet corridor.

Special Report

JET PLANES

Story Starts on

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centers there are 40 or 50 of these men—as the plane moves into each new sector of controlled air space. Piston-engine airplanes are already moving so fast that these slips of paper have to be handed from controller to controller at top speed.

All the time, each controller must juggle the airplanes that are flying in his particular sector. He sits in front of a rack on which the slips of paper representing each airplane are displayed in order of their altitude and speed. From a glance at this, he must keep the airplanes neatly stacked according to the altitude at which they're flying and the speed at which they're encroaching on one another.

While a plane is flying in a controlled airlane, the pilot must keep reporting its altitude and speed whenever he passes over certain fixed check points. In busy airlanes, as many as 20 planes often are heading for the same point in a 30-min. period.

All planes must be cleared past each of the check points without delay, for each airplane must be separated laterally from the preceding one by 10-min. flying time, and vertically each must be kept 1,000-ft. distant from its nearest neighboring plane.

• **"Inefficient"**—Eight years ago, a government-industry advisory group studied this air traffic control system and found the whole thing "inefficient" even for the airplanes of those days.

And now that jets are coming in, the thought of carrying twice as many people twice as fast in planes twice as expensive, without gaining any comparable increase in air traffic control efficiency gives aviation people nightmares.

• **Cash**—Unquestionably, the first step in improving air navigation and control systems is raising money. Congress has approved \$40-million as a first installment in a five-year, \$246-million plan to modernize the system.

And now, after years of having its requests for cash slashed by Congress, the CAA is ready to go ahead with its plan to build radar stations that will reach more than 100 miles in every direction. Then, by use of codes, radar "blips" can be identified as particular

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aircraft. The plane's position, altitude and identification can be fed to computers and to large automatic displays of air traffic. The computers with "memory" drums and high-speed printers will continually solve problems before they become conflicts.

• **Final Goal**—Eventually, automatic flight control may guide long-range flights along pre-selected routes and altitudes by means of punch cards. These cards, inserted in vast "memory" devices, would keep planes apart and select the right speed for them to arrive over airports at correct intervals, thereby avoiding "stacking." Jets burn fuel so fast that circling above airports waiting to land could quickly turn a money-making flight into a loser.

Finally, when and if automation is complete and planes take off, fly, and land in response to electronic impulses, pilots may go along only to read dials and to be handy in case of emergency.

But all this will take time. How much of it will be ready by 1959 and 1960 isn't yet known. It is no secret, however, that many airline executives would rather have put off the jet age for five years, until they could find more advanced ways of controlling the ever-faster-moving machines.

It hasn't worked out that way, though. In fact, with commercial aviation it never has. The machine that's to be controlled has always been introduced before adequate controls have been installed on the ground.

This time, because there's so much money involved, and because the new planes are such radical departures from conventional airliners, aviation men are doing all they can to prepare.

Whether the jets will perform the way manufacturers have promised; whether all airlines will be able to finance the jets; whether ground facilities will be ready for them; and whether traffic controls will keep them from colliding are all problems of the first rank.

Still, aviation men are confident they will be solved—though not without a struggle and some rough spots. The aviation industry is too young, too aggressive, and too used to problems to be stopped by such an upheaval as that caused by the jet age.

V. Finding the Passengers

But there's another problem, basic to the whole jet airline business, that has airline managements doing some deep soul-searching. The problem is: Will there be enough passengers to fill all the jets that the airlines have ordered?

To some observers, it seems that some airlines have ordered too many jets. These airlines, they say, have projected an average yearly increase in

passenger miles for the industry as a whole, then added another 5% or 10% to cover the increase they're expecting in their own business. This way, it is possible that the traffic projections of each airline, when added together, are considerably greater than what the industry thinks its total traffic will be by 1961.

• **Hotter Competition**—This is particularly true for domestic airlines. In the past year competition has suddenly increased on domestic routes. The Civil Aeronautics Board in case after case has opened or widened the door to competition where none or little existed before. United Air Lines has for years been the only transcontinental airline serving Denver, and Trans World Airlines has had a similar monopoly in Kansas City. Now TWA calls at Denver and United calls at Kansas City. This pattern is duplicated in dozens of other cities.

The question arises: What will these decisions do to each carrier's traffic predictions? No airline will willingly give up a single passenger to a new competitor. But any airline newly certificated to fly a route will be out to grab as much business as possible.

It's this prospect that has sent airline executives from big and little trunk lines into the market place for jets.

If one line flying between two cities offers 550 mph. to 600 mph. service while another has 350 mph. equipment for the same ticket price, it's not hard to imagine what will happen to the slower line.

That is why smaller airlines seem, to some observers, to be faced with being swallowed up if they don't buy jets—and with possible bankruptcy if they do.

• **Predictions**—It does not follow, however, that all airlines have bought too many jets. The heart of the question lies in finding the truth from the rash of forecasts of airline traffic that have been produced lately.

The CAA's official forecast of air traffic in 1961 is 28.8-billion passenger miles. This is the most conservative estimate of all, and it represents only a 6% average annual increase during the next five years.

But in the past five years, U. S. domestic trunk airlines have, on the average, increased their passenger mileage by 20% a year. More important from the financial viewpoint, they have maintained a steady load factor—passenger miles divided by seat miles—the indicator of an airline's success in attracting passengers.

On this basis, the airlines have a rosier view of their future than the CAA. Indeed, the CAA is already questioning the accuracy of its forecast and plans to revise its estimate upward.

• **Middle Group**—American Airlines'

Pres. C. R. Smith stands the middle ground on the question of what's ahead for the airlines. He says that by 1961, domestic trunk lines will be flying 34.5-billion passenger miles. That represents an average annual rate of growth of slightly less than 10% for the next five years. And Smith says that if the customers are to get the best service, the domestic airlines will need to fly 55-billion seat miles in 1961, at a load factor of almost 63%.

One critic says, though, that when the jets are flying in 1961, the airlines will have a fleet capable of flying 75-billion seat miles. This estimate includes the 30-billion seat miles that airlines flew in 1955, plus the 45-billion seat miles capacity of airplanes now on order.

American and most other carriers have a ready answer for this objection. They expect gradually to pull present-day airplanes from service.

• **Optimists**—There are others in the industry who believe that Smith is being too conservative. Champion of the optimists is Captain Eddie Rickenbacker, board chairman of Eastern Air Lines.

Rickenbacker summed up his thinking not long ago: "In my opinion," he said, "the trend is now firmly fixed if we can provide the aircraft and the volume service needed to capitalize and profit from the tremendous potential demand for air transportation."

• **Factors**—This is how he backs his opinion:

• Only 8-million individuals accounted for the 35-million passengers that U. S. airlines flew in 1954. The bulk of these 8-million used the airlines from two to 20 trips during the year. So in the 165-million population, there's a great number of potential new airline customers.

• The new generations have been "born in the lap of aviation." The airplane is their most natural and preferred means of travel.

• The U. S. population will reach 200-million by 1965, adding 35-million potential customers for everything the country produces, including air transportation, within the next 10 years.

All this prompts Rickenbacker's forecast that: "Through the use of jet power and other technical improvements now within reach, air transportation should make more progress in the next 10 years than we have been able to accomplish in the past 25 years. Within a year after the introduction of jet-powered air travel across the nation, the airlines will supersede surface transportation systems as the country's primary carrier of passengers."

• **Selling the Air**—If Rickenbacker is right, and he has been so frequently in the past, the airlines have not ordered too many jets. But whoever is right

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about how big the market will be in 1961, one thing is certain. Airlines are going to have to merchandise their service in a way and to a degree they never have before.

To fill its planes each carrier must provide the optimum in service because that's all it has to sell when so many lines flying competing routes fly identical equipment and charge the same price.

To capture a bigger share of the travel market, airlines are going to have to speed up their reservations procedures, or, in the case of heavily traveled commuter runs, dispense with reservations altogether. They will have to speed up baggage handling and getting customers to and from airports. Finally, on an industry-wide basis to lure more travellers to the air, they will have to reduce fares.

With all these avenues open to them, and with the growth curve of their traffic rising so fast, it's plain that even if the airlines don't manage by 1961 to drum up all the traffic needed to fill their planes, they'll almost certainly get sufficient passengers by 1962 or 1963.

Last winter, C. E. Woolman, one-time organizer of a crop dusting operation and now president of its successor, fifth-ranking Delta Air Lines said: "We are buying airplanes that haven't been fully designed, with millions of dollars we don't have, and we are going to operate them off airports that are too small, in an air traffic control system that is too slow, and we must fill them with more passengers than we have ever carried before."

A few weeks later, Woolman purchased six DC-8s for Delta, later added two more to his order. And with that, Woolman neatly signified how the airlines feel today, one year after the jet age really began.

The jets are coming. And in their rush they'll mature the airlines faster than anything else ever could. Licking all the problems they'll bring will be one of the toughest jobs any group of managements has ever faced. The industry says it will do the job. Undoubtedly it will—because it has to.

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Through the Iron Curtain

This month nine bankers from behind the Iron Curtain are attending the Ninth International Banking Summer School, this year being held at Rutgers University. The Communist group, which includes the deputy chairman of the Soviet state bank, is discussing America's foreign trade and investment with representatives from many of the West's leading commercial and investment banks.

We wouldn't venture to suggest who stands to gain more, the Communist bankers or the capitalist bankers, from the exchanges that will go on at Rutgers. But we have a feeling that as the Communists rub shoulders with the capitalists they will get a better appreciation of the West's economic strength and lose any notion they may have had that capitalism is doomed to depression and collapse.

It seems certain now that there will be an increasing number of East-West contacts along the lines of the Rutgers experiment. Pres. Eisenhower has just decided, on the recommendation of the National Security Council, that it is in the interest of this country to expand cultural, scientific, and economic exchanges with the Soviet bloc (excluding Red China). The President has held for some time that this is one way to encourage peaceful relations with the Soviet Union—and one way to test Moscow's real intentions.

This position strikes us as eminently sensible. With the Russian leaders now pressing for wider contacts, and showing signs that they want the Iron Curtain lowered, there is little to be said for the U. S. hanging back. For one thing, even our best friends abroad then would wonder whether we were the ones who wanted to maintain an iron curtain—a posture that would ill fit the whole of our history and tradition.

That said, we would like to express the strongest sort of objections to the way Soviet Foreign Minister Shepilov responded to Eisenhower's decision. True, Shepilov welcomed it and said some sensible and, we hope, well-meant things about the mutual advantages of U. S.-Soviet exchanges. But he also let fly, in typical Stalinist fashion, with a demand that the U. S. press should be "muzzled." Then Pravda followed by rejecting the U. S. idea of exchanging information centers—on the ground that we merely wanted to carry on espionage in this way. If the Soviet foreign minister really wants to encourage mutually profitable exchanges, we suggest that first he lower the Iron Curtain in his own mind.

We would also like to suggest that Soviet authorities should be careful, when Americans are about, not to repeat a performance that an official French

party recently observed in Soviet Armenia. On their arrival at the local capital, several hundred Armenians (from a much larger group who had emigrated to the Soviet Union from France just after World War II) gathered in a demonstration without any interference from the Soviet police. They told the French officials how hard life was, begged them to arrange for their repatriation to France. About an hour later, when the French party had supposedly left town, the police tossed many of the demonstrators into jail—only to let them out again when they discovered that the French party would not be leaving town for another two hours.

This is the sort of "socialist legality" that Americans don't understand—and never will.

Strike the Tent

This week, another American tradition crumpled quietly. John Ringling North, impresario of the mammoth, colossal, stupendous Ringling Bros. Barnum & Bailey circus, announced that the greatest show would no longer be seen in tents. The canvas was struck for the last time in Pittsburgh, and the show headed for its winter quarters in Sarasota facing an uncertain future (page 27).

Bad weather, labor trouble, freak disasters, and dwindling attendance had all combined to blow down the tents on the Big Show. Though it may be seen again in arenas like Madison Sq. Garden, for anyone who has seen the thrills, smelled the smells of a tent circus, it will never be a real circus.

We would like to have the faith of the Ringling clown who, when he heard the news of the closing, said: "Everything will turn out for the best—you can't kill what the children like." But today, the children like movies, television, radio, and rock and roll. And perhaps the saddest thing is that the great Big Top will be missed only by yesterday's children.

Policy Statement

Now that Messrs. Eisenhower, Dulles, and Nixon have taken several cuts at defining the U. S. attitude toward neutralism, we'd like a turn at the plate ourselves.

Our position is pretty simple:

We like our allies best.

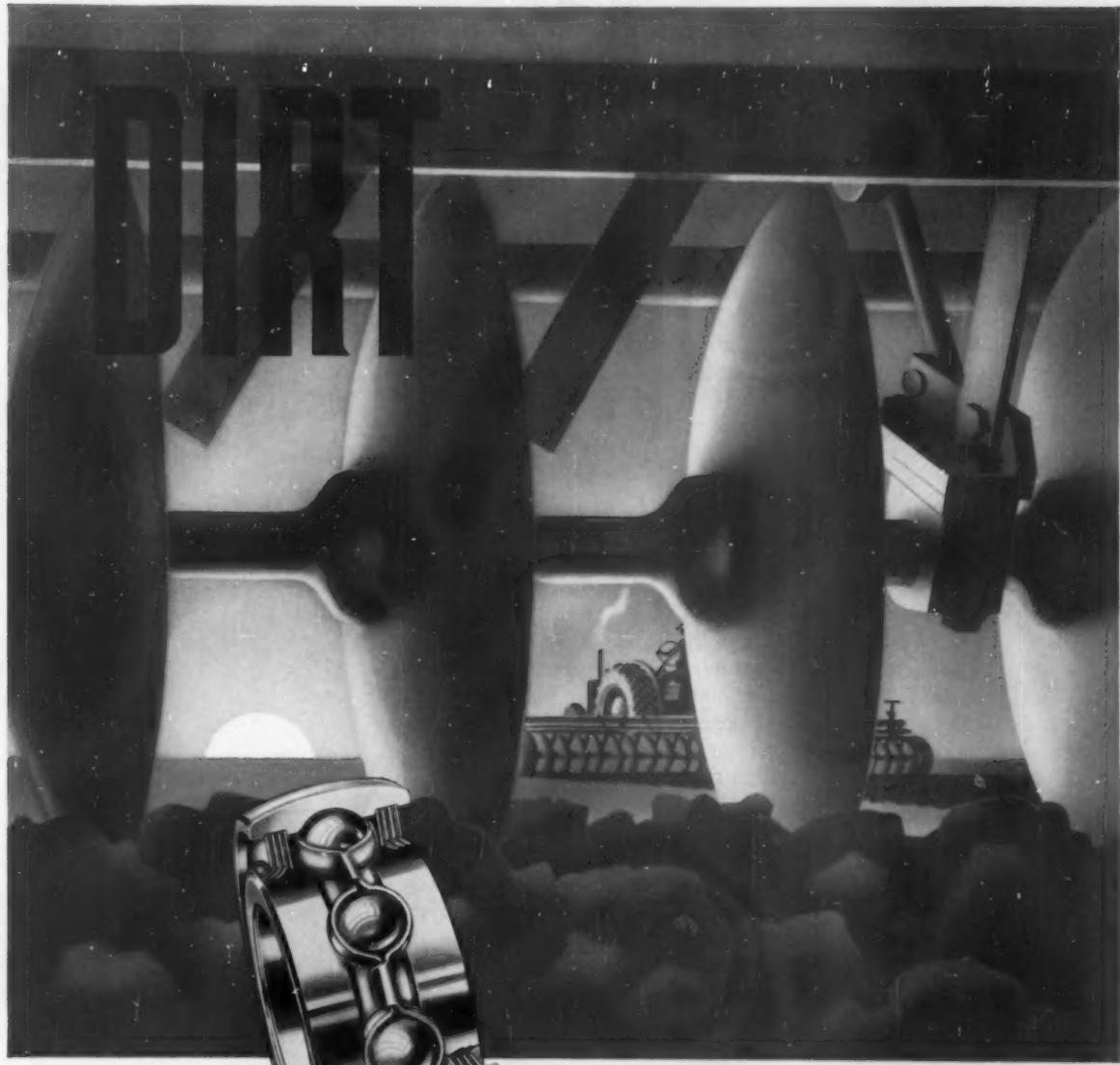
We like pro-Western neutrals second best.

We like pro-Soviet neutrals third best.

We like the Soviet bloc least.

End policy statement.

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newest development in
Fafnir sealed type bearings,
positively retains lubricant
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As in the famous Fafnir Plya-Seal Ball Bearings, the triple seals act two ways: they positively retain grease and exclude dirt, dust, and other contaminants. In textile machinery, home appliances, and aircraft control applications, Fafnir lubricated-for-life bearings prolong the life of equipment.

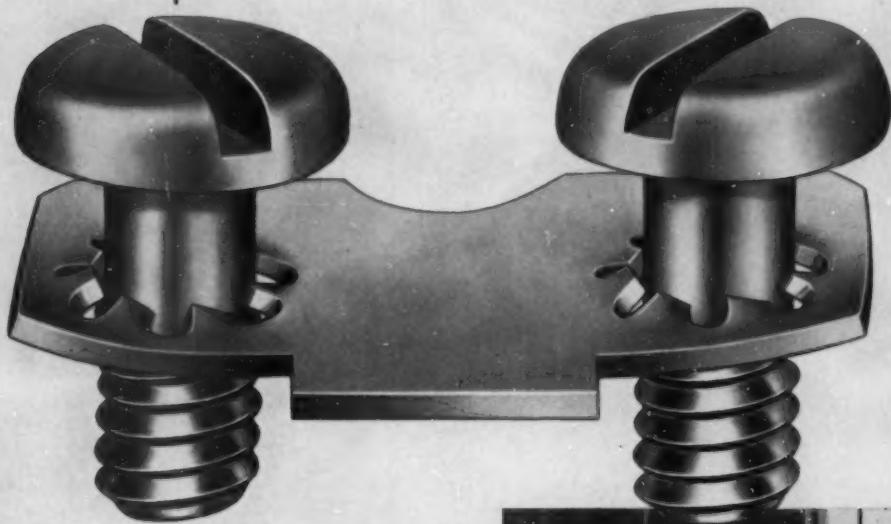
Maintenance, power saving, operating cost — whatever the problem, Fafnir's broad experience in the design and application of ball bearings is worth bearing in mind. The Fafnir Bearing Company, New Britain, Conn.

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2

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Pre-assembly can save costs for you. Put two heads to work on your fastener problem—team up your engineer with a Shakeproof fastener specialist.

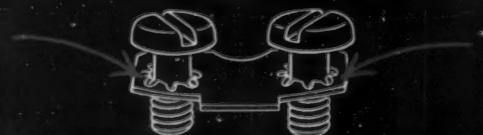


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The supporting plate is stamped with "built-in" lock washers, two screws are then assembled with the supporting plate.

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